# JVC

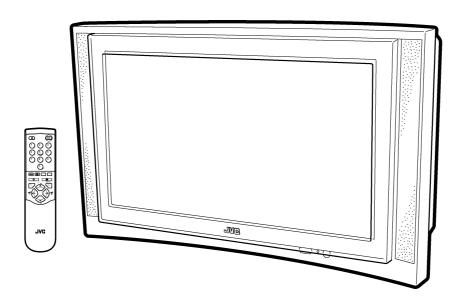
# SERVICE MANUAL

**COLOUR TELEVISION** 

## AV28L2EUGR AV28L2EUBL AV28L2EUGY

**BASIC CHASSIS** 

MF



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## **SPECIFICATIONS**

ltem	Content
Dimensions (W×H×D)	800mm×500mm×498mm
Mass	41.0kg
TV RF System	CCIR ( B/G, D/K, L, L', I )
Colour System	PAL / SECAM / NTSC (Only in EXT mode)
Stereo System	A2 (B/G, D/K) / NICAM (B/G, I, D/K, L)
Teletext System	Fastext (UK system) / TOP (German system) WST(Standard system)
Receiving Frequency	
VHF	47MHz ~ 470MHz
UHF	470MHz ~ 862MHz • French cable TV channel of broadcast frequencies 116~172MHz & 220~469MHz
Intermediate Frequency	
VIF Carrier	38.9MHz (B/G, D/K, I, L) / 33.95MHz (L')
SIF Carrier	33.4MHz (5.5MHz : B/G)
	32.9MHz (6.0MHz : I ) / 32.4MHz (6.5MHz : L, D/K) / 40.45MHz (6.5MHz : L')
Colour Sub Carrier Freq.	
PAL	4.43MHz
SECAM	4.40625MHz / 4.25MHz
NTSC	3.58MHz / 4.43MHz
Power Input	AC 220V~240V, 50Hz
Power Consumption	183W(Max) / 127W(Avg),
Aerial Input Term	75 Ω unbalanced, Coaxial
Picture Tube	Visible size : 66cm, Measured diagonally +1.0kV
High Voltage	31.0kV <sub>-1.5kV</sub> (at zero beam current)
Speaker	20cm × 4cm, Oval type × 2 with BOX
Audio Output	7.5W + 7.5W
EXT-1/EXT-2/EXT-3 (IN/OUT)	21-pin Euro connector (SCART socket) × 3
EXT-4 (Input) Video	1Vp-p 75 Ω (RCA pin jack)
Audio(L/R)	500mVrms(-4dBs), High Impedance (RCA pin jack)
S / Video	Y: 1Vp-p POSITIVE (Negative sync Provided, when terminated with 75 Ω)
	C: 0.3Vp-p (Burst signal, when terminated with 75 Ω)
AUDIO OUT (Variable)	0~1Vrms, Low Impedance (RCA pin jack × 2)
Headphone jack	Stereo mini jack ( $\phi$ 3.5mm )
Remote Control Unit	RM-C54 (AAA/R03 dry cell battery × 2)

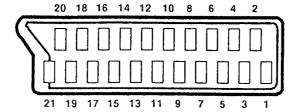
Design & specifications are subject to change without notice.

## ■21-pin Euro connector (SCART socket) : EXT-1 / EXT-2 / EXT-3

(P-P= Peak to Peak, B-W= Blanking to white peak)

Pin No.	Signal Designation	Matching Value	EXT-1	EXT-2	EXT-3
1	AUDIO R output	500mVrms(Nominal), Low impedance	O (TV OUT)	O (LINE OUT)	NC
2	AUDIO R input	500mVrms(Nominal), High impedance	0	0	0
3	AUDIO L output	500mVrms(Nominal), Low impedance	O (TV OUT)	O (LINE OUT)	NC
4	AUDIO GND		0	0	0
5	GND (B)		0	0	0
6	AUDIO L input	500mVrms(Nominal), High impedance	0	0	0
7	B input	700mV <sub>B-W</sub> , 75Ω	0	0	NC
8	FUNCTON SW (SLOW SW)	Low: 0-3V, High: 8-12V, High impedance	0	0	0
9	GND (G)		0	0	0
10	SCL3		NC	0	NC
11	G input	700mV <sub>B-W</sub> , 75 Ω	0	0	NC
12	SDA3		NC	0	NC
13	GND (R)		0	0	0
14	GND (Y <sub>S</sub> )		0	0	NC
15	R / C input	R: 700mV <sub>B-W</sub> , 75Ω	0	0	0
		C: $300\text{mV}_{\text{P-P}}$ , $75\Omega$	(only R)		(only C)
16	Ys input	Low: 0 - 0.4, High: 1 - 3V, 75Ω	0	0	NC
17	GND(VIDEO output)		0	0	0
18	GND(VIDEO input)		0	0	0
19	VIDEO output	1V <sub>p.p</sub> (Negative going sync), 75 Ω	O (TV)	O (LINE OUT)	NC
20	VIDEO / Y input	1V <sub>P-P</sub> (Negative going sync), 75 Ω	0	0	0
21	COMMON GND		0	0	0

[Pin assignment]



## SAFETY PRECAUTIONS

- The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- 3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
- Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.

Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE: (⊥) side GND, the ISOLATED(NEUTRAL): (⊥) side GND and EARTH: (⊕) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.

If above note will not be kept, a fuse or any parts will be broken.

- If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
- 6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
- 7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a  $10k\Omega$  2W resistor to the anode button.
- 8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

#### 9. Isolation Check

#### (Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

#### (1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.

(.... Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

This method of test requires a test equipment not generally found in the service trade.

#### (2) Leakage Current Check

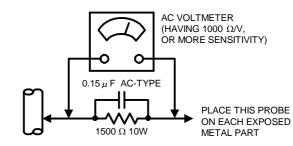
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

#### Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a  $1500\Omega$  10W resistor paralleled by a  $0.15\mu F$  AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).

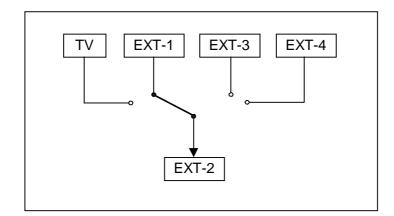


GOOD EARTH GROUND

## **FEATURES**

- New chassis design enable use of an interactive on screen control.
- The TELETEXT SYSTEM has a built-in FASTEXT (UK system), TOP (German system) and WST (world standard system) system.
- Pure FLAT CRT reproduce fine textured.
- Digi Pure pro : Auto digi pure with motion picture compensation.
- Because this TV unit corresponds to multiplex broadcast, users can enjoy music programs and sporting events with live realism.
   In addition, BILINGUAL programs can be heard in their original language.
- Built-in ECO (ECONOMY, ECOLOGY) MODE.
   In accordance with the brightness in a room, the brightness and/or contrast of the picture can be adjusted automatically to make the optimum picture which is easy on the eye.

 Users can make VCR dubbing of picture and sound by controlling the AV selector to select an optional source at the EXT-2 output shown in figure.



## MAIN DIFFERENCE LIST

Δ	Model name Part name	AV28L2EUGR	AV28L2EUBL	AV28L2EUGY
⚠	FRONT FRAME	LC11007-001B-U	LC11007-002B-U	LC11007-003A-U
⚠	RATING LABEL	LC20380-008A-U LC20379-008A-U	LC20380-012A-U LC20379-012A-U	LC20380-023A-U LC20379-019A-U
	EURO LABEL	AEM1052-017-E	AEM1052-014-E	AEM1052-071-E

## SPECIFIC SERVICE INSTRUCTIONS

#### **DISASSEMBLY PROCEDURE**

#### **REMOVING THE REAR COVER**

- 1. Unplug the power cord.
- 2. Remove the 11 screws marked "A" as shown in the Fig. 1.
- 3. Withdraw the rear cover toward you.

#### REMOVING THE SIDE CONTROL JACK ASSEMBLY

- After removing the rear cover.
- 1. Remove the screw marked **B** as shown in the Fig.1.
- 2. While slightly raise the side control jack assembly, remove the 2 claws under the side control jack assembly.
- Disconnect the connector "SR", "SL", "S", "F" and "K" as shown in Fig 2.

#### **REMOVING THE SIDE CONTROL PWB**

- After removing the rear cover and side control jack assembly.
- Remove the 3 claws "C" from back side of the side control jack assembly as shown in Fig.2.
- 2. Pull out the SIDE CONTROL PWB.

#### **REMOVING THE CHASSIS**

- After removing the rear cover.
- Slightly raise the both sides of the chassis by hand and remove the two claws under the both sides of the chassis from the front cabinet.
- Withdraw the chassis backward. (If necessary, take off the wire clamp, connectors etc.)

#### **REMOVING THE SPEAKER BOX**

- After removing the rear cover.
- 1. Remove the 2 screws marked "D" as shown in Fig. 1.

**NOTE**: When removing the screws marked **D** of the speaker box assembly, remove the lower side screw first, and then remove the upper one.

- 2. Remove the 2 screws "E" attaching the speaker box.
- 3. Remove the 2 screws "F" attaching the speaker.
- 4. Follow the same steps when removing the other hand speaker.

#### **REMOVING THE AV TERMINAL BOARD**

- After removing the rear cover.
- 1. Remove the 3 screws marked "G" as shown in the Fig. 1.
- 2. Remove the 2 claws marked "H" under the CHASSIS as shown in Fig. 3
- 3. Remove the AV TERMINAL BOARD slightly in the direction of arrow "I" as shown in Fig. 3.

#### **CHECKING THE PW BOARD**

To check the back side of the PW Board.

- 1) Pull out the chassis. (Refer to REMOVING THE CHASSIS).
- Erect the chassis vertically so that you can easily check the back side of the PW Board.

#### [CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PW board.

#### WIRE CLAMPING AND CABLE TYING

- 1. Be sure to clamp the wire.
- Never remove the cable tie used for tying the wires together.Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

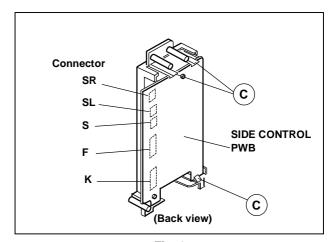


Fig. 2

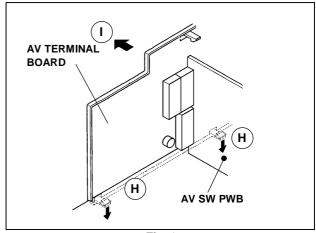
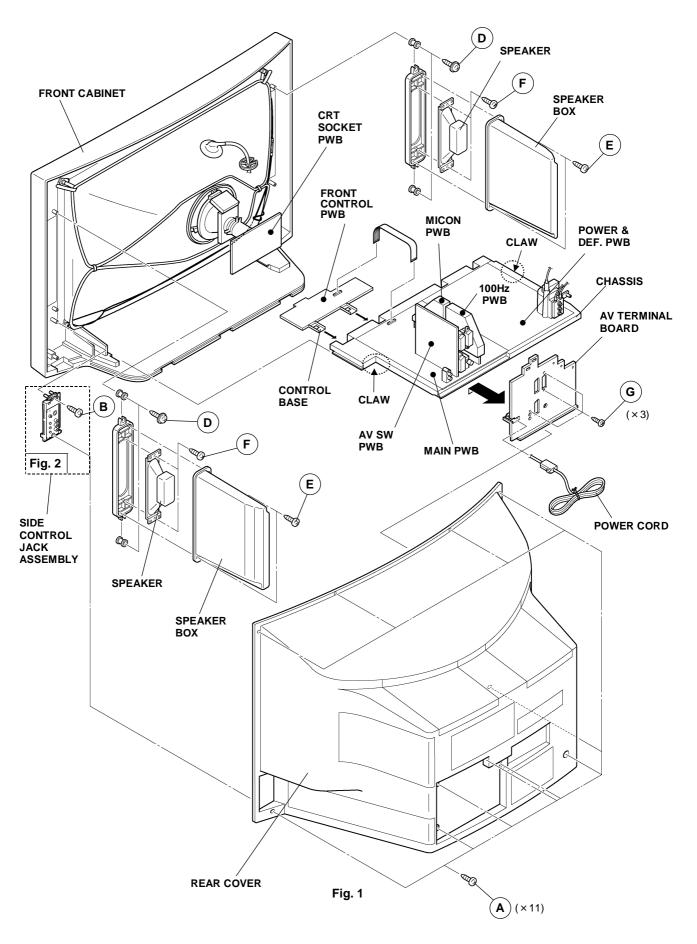


Fig. 3



#### **REMOVING THE CRT**

- Replacement of the CRT should be performed by 2 or more persons.
- · After removing the cover, chassis etc.,
- 1. Putting the CRT change table on soft cloth, the CRT change table should also be covered with such soft cloth (shown in Fig.4).
- 2. While keeping the surface of CRT down, mount the TV set on the CRT change table balanced will as shown in Fig.5.
- Remove 4 screws marked by arrows with a box type screw driver as shown in Fig.5.
- Since the cabinet will drop when screws have been removed, be sure to support the cabinet with hands.
- 4. After 4 screws have been removed, put the cabinet slowly on cloth (At this time, be carefully so as not to damage the front surface of the cabinet) shown in Fig.6.
- The CRT should be assembled according to the opposite sequence of its dismounting steps.
- \* The CRT change table should preferably be smaller that the CRT surface, and its height be about 35cm.
- \* About CRT Spacer

An appropriate CRT spacer should be used in the corresponding CRT in accordance with the type of the CRT.

When a CRT is replaced, special attention should be paid to this matter.

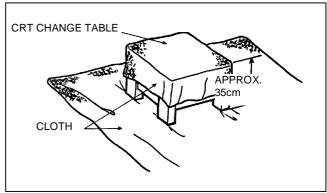


Fig. 4

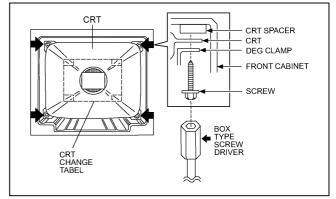


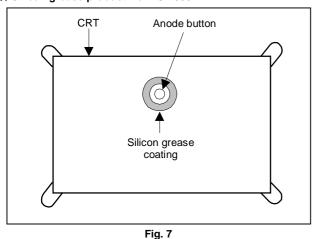
Fig. 5

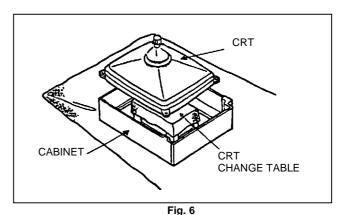
## COATING OF SILICON GREASE FOR ELECTRICAL INSULATION ON THE CRT ANODE CAP SECTION.

 Subsequent to replacement of the CRT and HV transformer or repair of the anode cap, etc. by dismounting them, be sure to coat silicon grease for electrical insulation as shown in Fig.7.
 Wipe around the anode button with clean and dry cloth. (Fig.7)
 Coat silicon grease on the section around the anode button. At this time, take care so that any silicon greases dose not stick to the anode button. (Fig.8)

#### ★ Silicon grease product No. KS - 650N

8





Approx. Silicon grease 20mm (Do not should be coated coat grease on by 5mm or more this section from the outside diameter of anode cap. Anode button Coating position (No sticking of silicon grease) of silicon grease Anode cap Fig. 8

#### REPLACEMENT OF MEMORY ICs

#### 1. Memory ICs

This TV use memory ICs. In the memory ICs, there are memorized data for correctly operating the video and deflection circuits. When replacing memory ICs, be sure to use ICs written with the initial values of data.

#### 2. Procedure for replacing memory ICs

# PROCEDURE (1) Power off Switch the power off and unplug the power cord from the wall outlet. (2) Replace ICs. Be sure to use memory ICs written with the initial data values. (3) Power on Plug the power cord into the wall outlet and switch the power on.

#### (4) Check and set SYSTEM CONSTANT SET:

- \* It must not adjust without signal.
  - Press the INFORMATION key and the MUTING key of the REMOTE CONTROL UNIT simultaneously.
  - 2) The SERVICE MENU screen of Fig. 1 will be displayed.
  - 3) While the SERVICE MENU is displayed, press the INFORMATION key and MUTING key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed.
  - 4) Check the setting values of the SYSTEM CONSTANT SET of Table 1. If the value is different, select the setting item with the FUNCTION UP/DOWN key, and set the correct value with the FUNCTION -/+ key.
  - 5) Press the MENU(OK) key to memorize the setting value.
  - 6) Press the INFORMATION key, and return to the normal screen.

#### (5) Setting of receive channels

Set the receive channel.

For setting, refer to the OPERATING INSTRUCTIONS.

#### (6) Setting of SERVICE MENU

Verify the setting items of the **SERVICE MENU** of Table 2, and reset where necessary.

For setting, refer to the SERVICE ADJUSTMENTS.

#### (7) User settings

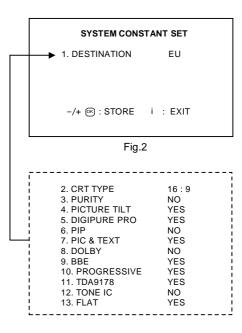
Check the user setting values of Table 3, and if setting value is different, set the correct value.

For setting, refer to the OPERATING INSTRUCTIONS.

#### SERVICE MENU

1. IF 2. V/C
3. AUDIO 4. DEF
5. VSM PRESET 6. STATUS
7. PIP 8. --9. SHIPPING (OFF) 0. BUS FREE
1-9: SELECT i : EXIT

Fig.1



#### NAME OF REMOTE CONTROL KEY

Names of key	key	
INFORMATION	(i)	
MUTING	×	
MENU	OK	
FUNCTION UP/DOWN	(*) (*)	
FUNCTION -/+	<b>△</b> (•)(•) <sup>+</sup>	
TV	TV	

#### **SETTING VALUES OF SYSTEM CONSTANT SET (TABLE 1)**

Setting item	Setting content	Setting value
1. DESTINATION	EK → EU → EI ─	EU
2. CRT TYPE	→ 16:9 → 4:3	16 : 9
3. PURITY	→ YES → NO ¬	NO
4. PICTURE TILT	→ YES → NO ¬	YES
5. DIGIPURE PRO	→ YES → NO ¬	YES
6. PIP	↑1 TUNER → 2 TUNER → NO	NO
7. PIC & TEXT	→ YES → NO ¬	YES
8. DOLBY	→ YES → NO ¬	NO
9. BBE	→ YES → NO ¬	YES
10. PROGRESSIVE	→ YES → NO ¬	YES
11. TDA9178	→ YES → NO ¬	YES
12. TONE IC	→ YES → NO ¬	NO
13. FLAT	→ YES → NO ¬	YES

#### **SERVICE MENU SETTING ITEMS (TABLE 2)**

Setting item	Setting value	Setting item	Setting value
1. IF  2. V / C	1. VCO  1. RGB BLK 2. WDR R 3. WDR G 4. WDR B 5. BRIGHT 6. CONTRAST 7. COLOUR 8. HUE 9. SHARP 10. VCO ADJUSTMENT 11. VIDEO AGC 12. SYNC SLICE	5. VSM PRESET  COOL  NORMAL  WARM	1. V-SHIFT 2. V-SIZE 3. H-CENT 4. H-SIZE 5. TRAPEZ 6. EW-PIN 7. COR-PIN 8. COR-UP 9. COR-LO 10. ANGLE 11. BOW 12. V-S.CR 13. V.LIN  1. CONT. 2. BRIGHT 3. SHARP 4. COLOUR 5. HUE 6. WDR R 7. WDR G 8. WDR B
3. AUDIO (Do not adjust)	1. ERR LIMIT 2. A2 ID THR	6. STATUS (Do not adjust)	VPS PDC

#### **USER SETTING VALUES (TABLE 3)**

Setting item	Setting value	Setting item	Setting value		
SUB POWER	ON	VOLUME	Appropriate sound volume		
SHIPPING CHANNEL	PR1	DISPLAY	INDICATED		
PRESET CHANNEL	See ; OPERATING INSTRUCTIONS.	ZOOM MODE	PANORAMIC		
PICTURE SETTING		EXT SETTING			
TINT	COOL	ID	BLANK		
CONTRAST	REFER to VSM SETTING	DUBBING	EXT-1→EXT-2		
BRIGHT	REFER to VSM SETTING				
SHARP	REFER to VSM SETTING				
COLOUR	REFER to VSM SETTING				
ECO MODE	OFF				
PICTURE FEATURES	PICTURE FEATURES		FEATURES		
DIGITAL VNR	AUTO	SLEEP TIMER	OFF		
DIGIPURE PRO	AUTO	BLUE BLACK	ON		
COLOUR SYSTEM	TV : According to preset CH	CHILD LOCK	ID : No.0000, ALL CH : OFF		
	EXT : AUTO	DECODER (EXT-2)	ALL CH : OFF		
AUTO ASPECT	PANORAMIC				
SOUND SETTING		INSTALL			
BASS	CENTER	LANGUAGE	ENGLISH		
TREBLE	CENTER	EDIT	PR CHANNEL ONLY		
BALANCE	CENTER		OTHERS : BLANK		
TV SPEAKER	L/R				
HYPER SOUND	OFF				
BBE	ON				

## SERVICE ADJUSTMENTS

#### **BEFORE STARTING SERVICE ADJUSTMENT**

- There are 2 ways of adjusting this TV: One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
- The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- 3. Make sure that connection is correctly made to AC power source
- 4. Turn on the power of the TV and measuring instrument for warming up for at least 30 minutes before starting adjustment.
- 5. If the receive or input signal is not specified, use the most appropriate signal for adjustment.
- Never touch parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

Preparation for adjustment (presetting):
 Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT:

#### Setting position

PICTURE MODE (VSM)	NORMAL
SLEEP TIMER	OFF
BALANCE	CENTER
ECO	OFF
ZOOM	PANORAMIC

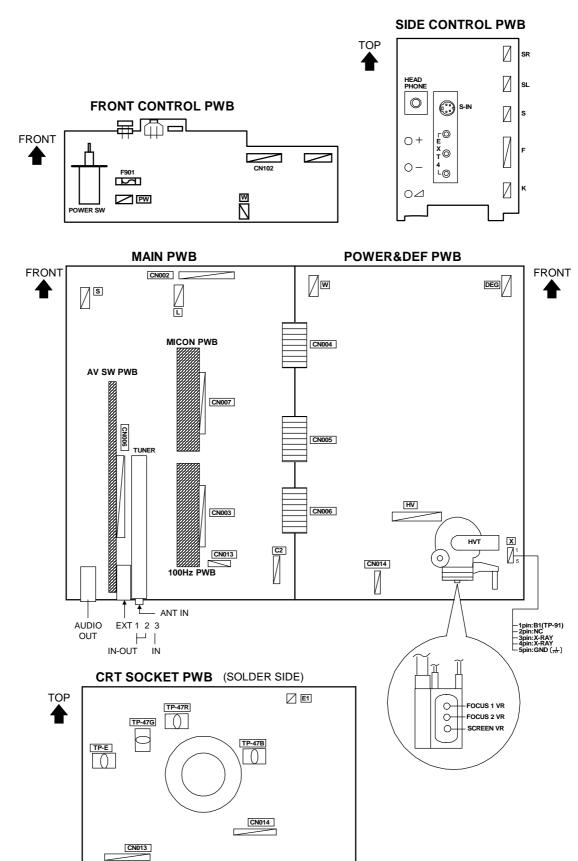
#### **MEASURING INSTRUMENT AND FIXTURES**

- 1. DC voltmeter (or digital voltmeter)
- 2. Oscilloscope
- 3. Signal generator (Pattern generator) [PAL / SECAM / NTSC]
- 4. Remote control unit

#### **ADJUSTMENT ITEMS**

- Checking items.
- Adjustment of FOCUS.
- VSM preset setting.
- VIDEO / CHROMA circuit adjustment.
- DEFLECTION circuit adjustment.
- AUDIO circuit adjustment. (Do not adjust)

#### **ADJUSTMENT LOCATIONS**



#### **BASIC OPERATION SERVICE MENU**

#### 1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

#### 2. SERVICE MENU ITEMS

With the SERVICE MENU, various settings (adjustments) can be made, and they are broadly classified in the following items of settings (adjustments):

(1) **1. IF** ..... This mode adjusts the setting values of the IF circuit.

(2) 2.V/C · · · · This mode adjusts the setting values of the VIDEO / CHROMA circuit.

(3) 3.AUDIO · · · · · This mode adjusts the setting values of the multiplicity SOUND circuit.

(4) **4.DEF** ..... This mode adjusts the setting values of the DEFLECTION circuit for each aspect mode given below.

ASPECT	V. FREQ.
FULL	100Hzi / 60HzP / 120Hzi
PANORAMIC	1
SUBTITLE	1

(5) **5.VSM PRESET**······ This mode adjusts the initial setting values of COOL, NOMAL and WARM.

(VSM: Video Status Memory)

#### 3. BASIC OPERATION OF SERVICE MENU

#### (1) How to enter SERVICE MENU

Press the INFORMATION key and the MUTING key of the REMOTE CONTROL UNIT simultaneously, and the SERVICE MENU screen of Fig. 1 will be displayed.

#### **SERVICE MENU**

#### **SERVICE MENU**

1. IF 2. V/C 3. AUDIO 4. DEF 5. VSM PRESET 6. STATUS 7. PIP 8. ---

9. SHIPPING (OFF) 0. BUS FREE

1-9: SELECT i : EXIT

Fig.1

#### (2) Selection of SUB MENU SCREEN

Press one of keys  $1{\sim}5$  of the REMOTE CONTROL UNIT and select the SUB MENU SCREEN (See Fig. 3), form the SERVICE MENU.

DO NOT

WORK

SERVICE MENU → SUB MENU

1. IF

2. V / C

3. AUDIO

4. DEF.

5. VSM PRESET

6. STATUS

7. PIP

8. - - -

9. SHIPPING (OFF)

0. BUSS FREE

#### NAME OF REMOTE CONTROL KEY

Names of key	key
INFORMATION	(i)
MUTING	×
MENU	OK
FUNCTION UP/DOWN	(*) (*)
FUNCTION -/+	<b>△</b> (•)(•) <sup>+</sup>
TV	TV

Fig.2

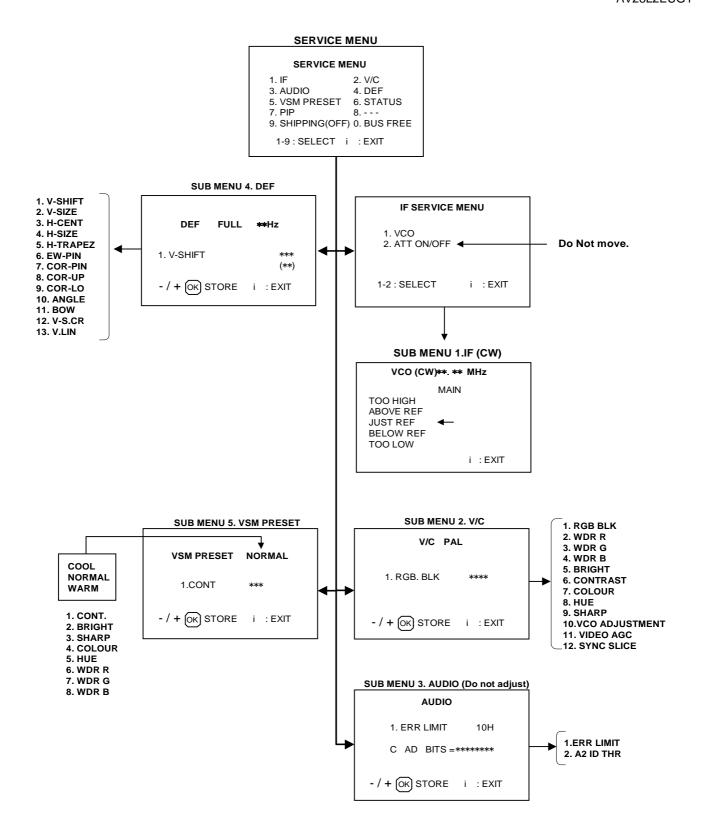


Fig. 3 SUB MENU SCREEN

AV28L2EUGR AV28L2EUBL AV28L2EUGY

#### (3) Method of Setting

•	Method	of	Settina	1.	.IF
---	--------	----	---------	----	-----

[VCO]  $\cdots\cdots *$  It must not adjust without signal.

① 1 Key····· Select 1.IF.

② 1 Key ..... Select 1. VCO (CW)

Check the arrow position between ABOVE REF. and BELOW REF.

③ INFORMATION (i) ) Key · · · · · Return to the SERVICE MENU screen.

#### • Method of setting 2.V/C, 3.AUDIO, 4.DEF and 5.VSM PRESET.

① 2~5 Key····· Select one from 2. V/C, 3. AUDIO, 4. DEF and 5. VSM PRESET.

② FUNCTION UP/DOWN Key · · · · · Select setting items.

③ FUNCTION -/+----- Set (adjust) the setting values of the setting items.

④ MENU (OK) Key · · · · · Memorize the setting value.

(Before storing the setting values in memory, do not press the CH, TV, POWER ON / OFF key - if you do, the values will not be stored in memory.)

⑤ INFORMATION ( (i) ) Key · · · · · Return to the **SERVICE MENU** screen.

• Can not setting 6. STATUS, 7. PIP, 8. ---, 9. SHIPPING(ON) & 0. BUS FREE.

#### (4) Release of SERVICE MENU

1) After completing the setting, return to the SERVICE MENU, then again press the INFORMATION (OK) key.

#### **ADJUSTMENT**

#### **CHECKING ITEM**

ltem	Measuring instrument	Test point	Adjustment part	Description
Check of B1 Power Supply	Signal Generator DC voltmeter Remote Control unit	TP-91(B1) TP-E(♣) [X connector on POWER DEF PWB]	1. RGB BLK	<ol> <li>Receive any broadcast.</li> <li>Press the ZOOM key and select the FULL mode.</li> <li>Select 2. V/C from the SERVICE MENU.</li> <li>Select 1. RGB BLK with function UP / DOWN key.</li> <li>Press the function +(∠) key to find the cut off screen (Black screen).</li> <li>Connect a DC voltmeter to TP-91(B1) and TP-E(⊥).</li> <li>Make sure that the voltage is DC139.9 ±2.0V.</li> <li>Press the function – (∠) key to return to service menu.</li> </ol>
Check of High Voltage	Signal CRT and		1. RGB BLK	<ol> <li>Receive any broadcast.</li> <li>Press the ZOOM key and select the FULL mode.</li> <li>Select 2. V/C from the SERVICE MENU.</li> <li>Select 1. RGB BLK with function UP / DOWN key.</li> <li>Press the function +(∠) key to find the cut off screen (Black screen).</li> <li>Connect a DC voltmeter to CRT ANODE and chassis GND.         <ul> <li>+1kV</li> </ul> </li> <li>Make sure that the voltage is DC 31.0kV -1.5kV.</li> <li>Press the function – (∠) key to return to service menu.</li> </ol>
Check of VCO	Remote control unit  IF SERVICE M  1. VCO 2. ATT ON/OFF		1. VCO	<ul> <li>Under normal conditions, no adjustment is required.</li> <li>Confirmation adjustment.</li> <li>Select 1.IF from the SERVICE MENU.</li> <li>Then select 1.VCO from the IF SERVICE MENU.</li> <li>Receive any broadcast.</li> <li>Check the arrow (←) position between the ABOVE REF. and BELOW REF.</li> </ul>
ABC JUS BEL	VCO(CW) MAIN D HIGH DVE REF ST REF OW REF D LOW	i: EXIT		

#### **ADJUSTMENT OF FOCUS & SCREEN**

Item	Measuring instrument	Test point	Adjustment part	Description
	Signal generator  FOCUS 1 VR FOCUS 2 VR SCREEN VR	FOCUS 2 V	FOCUS 1 VR FOCUS 2 VR [In HVT]  R FOCUS 1 VR	<ol> <li>Receive a cross-hatch signal.</li> <li>By turning the FOCUS 2 VR, adjust the to make the vertical lines as fine and sharp as possible.</li> <li>By turning the FOCUS 2 VR, adjust the picture so that the 5th vertical line from left side of the cross-hatch picture becomes thinnest.</li> <li>By turning the FOCUS 1 VR, adjust the 3rd horizontal line from the upper side may become uniform at the line center and its periphery.</li> <li>Carry out adjustment by repeating the steps 3 and 4 about.</li> <li>Make sure that when the screen is darkened, the lines remain in good focus.</li> </ol>
Adjustment of SCREEN VR	Signal generator  V/C  1. RGB_BLK  -/+ OK STOIL  1. 00000	RE i :EXIT 100} ★	SCREEN VR (In HVT)	<ol> <li>Press a whole black signal.</li> <li>Press the ZOOM key and select the FLL mode.</li> <li>Select 2. V/C from the SERVICE MENU.</li> <li>Rotate the SCREEN VR clockwise from the full counterclockwise position and stop it at the point where "CLOW" status (marked fin Fig.) changes from 1 to 0 (which is indicated at the 3rd column from the right.)</li> <li>* "CLOW": control loopout of window.</li> </ol>

#### **VSM PRESET SETTING**

Item Measuring instrument		•	Test point	Adjustment p	oart	Description				
VSM PRESET con		Remote		2. BRIGHT 3. SHARP 4. COLOUR 5. HUE 6. WDR R 7. WDR G 8. WDR B		<ol> <li>Select 5.VSM PRESET from the SERVICE MENU.</li> <li>Select COOL with the MENU key of the remote control unit.</li> <li>Adjust the FUNCTION UP/DOWN and -/+ key to bring the set values of 1.CONT.~ 8. WDR B to the values shown in th table.</li> <li>Press the MENU key and memorize the set value.</li> <li>Respectively select the VSM PRESET mode for NORMAL and WARM, and make similar adjustment as in 3 above.</li> <li>Press the MENU key and memorize the set value.</li> <li>Refer to OPERATING INSTRUCTIONS for the PICTURI MODE.</li> </ol>				
VSM p	oreset mode	1.CON	Γ. 2.BRIGH	T 3.SHARP	4.CO	LOUR	5.HUE	6.WDR R	7.WDR G	8.WDR B
COOL		+16	0	-12	(	)	0	-25	-12	0
NORMAL		0	0	-12	0		0	0	0	0
WARM		-13	0	-12	-1		0	+5	0	0
			1	SETTING VAL	UES OI	F VSM	PRESET		•	<u>.                                      </u>

#### **VIDEO/CHROMA CIRCUIT ADJUSTMENT**

The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

marked ★ :Do not adjust

Colour system	Initi	al setting v	alue	Colour system	Initial setting value		
Setting item	PAL SECAM NTSC		Setting item	PAL	SECAM	NTSC	
1.RGB BLK				7.COLOUR	000	000	000
2.WDR R	000	-	<b>←</b>	8.HUE	_	_	020
3.WDR G	000	<b>←</b>	<b>←</b>	9.SHARP	<b>*</b> +007	<b>←</b>	<b>+</b>
4.WDR B * -012 ← ←			<b>←</b>	10.VCO ADJUSTMENT	Automatically optimized after adjustment		
5.BRIGHT	<b>BRIGHT</b> 000 <b>← ←</b>			11.VIDEO AGC	* 000	<b>←</b>	<b>←</b>
6.CONTRAST	000	•	<b>←</b>	12.SYNC SLICE	<b>*</b> +007	<b>←</b>	<b>←</b>

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of WHITE BALANCE (High-Light)	Signal generator Remote control unit		2.WDR R 3.WDR G	<ul> <li>Set the PICTURE MODE to NORMAL.</li> <li>1. Receive a black and white signal (colour off).</li> <li>2. Select 2. V/C from the SERVICE MENU.</li> <li>3. Modify 2. WDR R and 3.WDR G data to adjust the white balance ( high light ).</li> <li>4. Press the MENU key and memorize the set value.</li> <li>5. Change the contrast and brightness with the remote control up &amp; down from low-light to high-light and check that the tracking of the white balance is good.</li> </ul>
Adjustment of SUB BRIGHT	Remote control unit		5.BRIGHT	<ol> <li>Receive any broadcast.</li> <li>Select 2.V/C from the SERVICE MENU.</li> <li>Select 5.BRIGHT with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value with the FUNCTION -/+ key.</li> <li>If the brightness is not the best with the initial setting value, make fine adjustment until you get the best brightness.</li> <li>Press the MENU key and memorize the set value.</li> </ol>
Adjustment Of SUB CONTRAST.	Remote control unit		6.CONTRAST	<ol> <li>Receive any broadcast.</li> <li>Select 2.V/C from the SERVICE MENU.</li> <li>Select 6.CONTRAST with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value with the FUNCTION - or + key.</li> <li>If the contrast is not the best with the initial setting value, make fine adjustment until you get the best contrast.</li> <li>Press the MENU key and memorize the set value.</li> </ol>

Item	Measuring instrument	Test point	Adjustment part	Description			
Adjustment of SUB	Remote control unit		7.COLOUR (PAL/SECAM/NTSC)	[Method of adjustment without measuring instrument]			
COLOUR I			PAL COLOUR	<ol> <li>(PAL COLOUR)</li> <li>Receive PAL broadcast.</li> <li>Select 2.V/C from the SERVICE MENU.</li> </ol>			
(*)	② ③ I	CH. key		<ol> <li>Select 7.COLOUR with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value for PAL COLOUR with the FUNCTION - or + key.</li> <li>If the colour is not the best with the initial set value, make fine adjustment until you get the best colour.</li> <li>Press the MENU key and memorize the set value.</li> </ol>			
	8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-	SECAM COLOUR	(SECAM COLOUR)  1. Receive a SECAM broadcast.  2. Make fine adjustment of SECAM COLOUR in the same manner as for above.			
	P OK	MENU (OK) key	NTSC COLOUR	<ol> <li>(NTSC 3.58 COLOUR)</li> <li>Input a NTSC 3.58MHz COMPOSITE VIDEO signal from the EXT terminal.</li> <li>Make similar fine adjustment of NTSC 3.58 COLOUR in the same manner as for above.</li> </ol>			
		TION key		(NITSC 4.43 COLOUR)			
(j)(IN	IFORMATION)	key		<ol> <li>(NTSC 4.43 COLOUR)</li> <li>Receive a NTSC 4.43MHz COMPOSITE VIDEO signal from the EXT terminal.</li> <li>Make similar fine adjustment of 4.43 COLOUR in the same manner as for above.</li> </ol>			

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB COLOUR II	Signal generator Oscilloscope	TP-47B TP-E(♣) [CRT SOCKET	7.COLOUR (PAL/SECAM/NTSC)	[Method of adjustment using measuring instrument]
	Remote control unit	PWB]	PAL COLOUR	<ol> <li>(PAL COLOUR)</li> <li>Receive a PAL full field colour bar signal(75% white).</li> <li>Select 2.V/C from the SERVICE MENU.</li> <li>Select 7.COLOUR with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value of PAL COLOUR with the FUNCTION - or + key.</li> <li>Connect the oscilloscope between TP-47B and TP-E</li> <li>Adjust PAL COLOUR and bring the value of (A) in the illustration to +5V (voltage difference between white (w) and blue (B)).</li> <li>Press the MENU key and memorize the setting value.</li> </ol>
			SECAM COLOUR	<ol> <li>(SECAM COLOUR)</li> <li>Receive a SECAM full field colour bar signal(75% white).</li> <li>Set the initial setting value of SECAM COLOUR with the FUNCTION -/+ key.</li> <li>Adjust SECAM COLOUR and bring the value of (A) of the illustration to +4V(W~B).</li> <li>Press the MENU key and memorize the setting value.</li> </ol>
w	Cy Mg B	(+)	NTSC COLOUR	<ol> <li>(NTSC 3.58 COLOUR)</li> <li>Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal.</li> <li>Set the initial setting value of NTSC 3.58 COLOUR with the FUNCTION -/+ key.</li> <li>Adjust NTSC 3.58 COLOUR and bring the value of (A) of the illustration to +6V(W~B).</li> <li>Press the MENU key and memorize the setting value.</li> </ol>
				<ol> <li>(NTSC 4.43 COLOUR)</li> <li>Input a NTSC 4.43MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal.</li> <li>Set the initial setting value of NTSC 4.43 COLOUR with the FUNCTION -/+ key.</li> <li>Adjust NTSC 4.43 COLOUR and bring the value of (A) of the illustration to +6V(W~B).</li> <li>Press the MENU key and memorize the setting value.</li> </ol>

Item	Measuring instrument	Test point	Adjustment part	Description				
Adjustment of	Remote control unit		8.HUE	[Method of adjustment without measuring instrument]				
SUB HUE I			NTSC 3.58 HUE	<ol> <li>[NTSC 3.58 HUE](NTSC only)</li> <li>Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal.</li> <li>Select 2.V/C from the SERVICE MENU.</li> <li>Select 8.HUE with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value of NTSC 3.58 HUE with the FUNCTION -/+ key.</li> <li>If you cannot get the best hue with the initial setting value, make fine adjustment until you get the best hue.</li> <li>Press the MENU key and memorize the set value.</li> </ol>				
			NTSC 4.43 HUE	[NTSC 4.43 HUE]  1. When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.				
Adjustment of	Signal generator	TP-47B TP-E(♣)	8.HUE	[Method of adjustment using measuring instrument]				
SUB HUE II	Oscilloscope Remote control unit	[CRT SOCKET PWB]	NTSC 3.58 HUE	<ol> <li>[NTSC 3.58 HUE]</li> <li>Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal.</li> <li>Select 2.V/C from the SERVICE MENU.</li> <li>Select 8.HUE with the FUNCTION UP/DOWN key.</li> <li>Set the initial setting value of NTSC 3.58 HUE with the FUNCTION - or + key.</li> <li>Connect the oscilloscope between TP-47B and TP-E</li> <li>Adjust NTSC 3.58 HUE to bring the value of (B) in the illustration to -3V (voltage difference between white (W) and magenta(Mg)).</li> <li>Press the MENU key and memorize the setting value</li> </ol>				
w	Cy Mg B	) (-) 0 (+)	NTSC 4.43 HUE	[NTSC 4.43 HUE]  1. When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.				
Adjustment of VCO for colour decoder	Signal generator Remote control unit		10. VCO	<ol> <li>Input a PAL full field colour bar signal (75% white) from the EXT terminal.</li> <li>Select 2. V/C from the SERVICE MENU.</li> <li>Select 10. VCO adjustment with the FUNCTION UP/DOWN key.</li> <li>Press the OK key then automatically optimized.</li> </ol>				

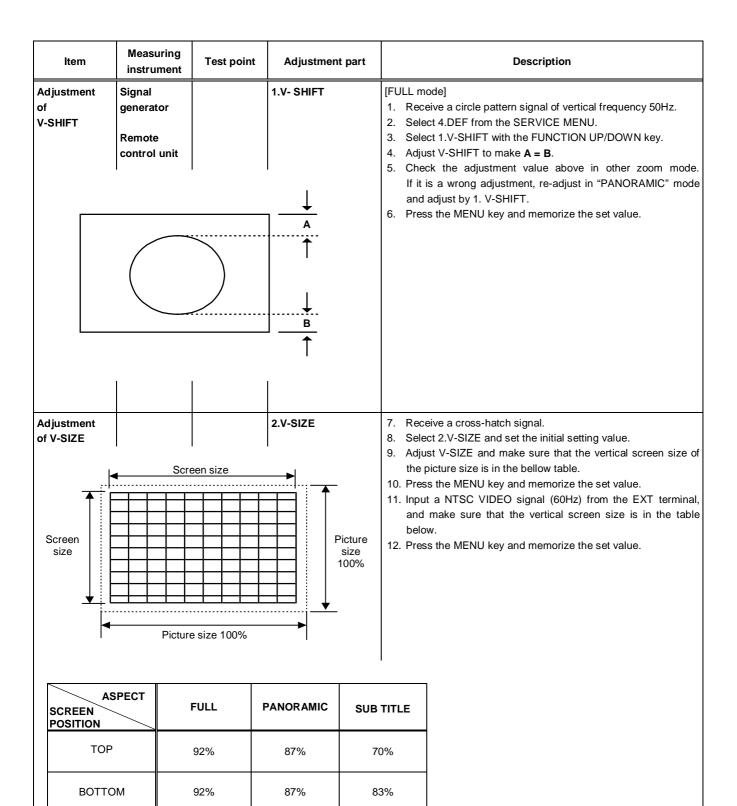
#### **DEFLECTION CIRCUIT ADJUSTMENT**

There are 4 aspect modes ( ①FULL, ②PANORAMIC, ③SUBTITLE, ④COMPRESS) of the adjustment ( 1 ) 100Hz i mode, ( 2 ) 60Hz p and ( 3 ) 120Hz i mode····· depending upon the kind of signals ( vertical frequency 100Hzi / 60HZp / 120Hzi ).

- When the 100Hz FULL mode has been established, the setting of other modes will be done automatically. However, if the picture quality has not been optimized, adjust each mode again, respectively.
- The adjustment using the remote control unit is made on the basis of the initial setting values.
- The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

		Initial setting value												
Setting item	FU	LL	PANO	RAMIC	SUBT	TITLE	COMPRESS							
	100Hz i	60Hz p	100Hz i	60Hz p	100Hz i	60Hz p	100Hz i	120Hz i						
1.V- SHIFT	-4	+8	+1	0	+8	+2	0	0						
2.V-SIZE	+7	0	0	0	0	0	-15	0						
3.H-CENT	-23	+4	-4	0	0	0	0	0						
4.H-SIZE	-27	-4	-4	0	0	0	0	0						
5.TRAPEZ	-17	+13	0	0	0	0	0	0						
6.EW-PIN	-45	0	0	0	0	0	0	0						
7.COR-PIN	0	0	0	0	0	0	0	0						
8.COR-UP	0	0	0	0	0	0	0	0						
9.COR-LO	-10	0	0	0	0	0	0	0						
10.ANGLE	0	0	0	0	0	0	0	0						
11.BOW	0	0	0	0	0	0	0	0						
12.V-S.CR	+6	0	+5	0	+7	0	0	0						
13.V-LIN	-4	+4	-11	0	-22	0	0	0						

\*Screen tone : Do not move fixed value.



24	No. 51778

[SCREEN SIZE]

ASPECT FULL PANORAMIC SUBTITLE H SIZE 92% 95% 92%  [ SCREEN SIZE ]  Adjustment of EW-PIN 23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left				Maa	ourin o	. T							
H.CENTER Remote control unit  Adjustment of H.SIZE  AGJUST H.SIZE  ALBERT J. Receive a cross-hatch signal.  17. Receive a cross-hatch signal.  18. Select 3.H-SIZE and set the initial setting value.  19. Adjust H-SIZE and set the initial setting value.  19. Adjust H-SIZE and set the initial setting value.  19. Adjust H-SIZE and set the initial setting value.  20. Press the MENU key and memorize the set value.  21. Input a NTSC VIDEO signal (60Hz) from the EXT terminal make sure that the horizontal screen size is in the table by 22. Press the MENU key and memorize the set value.  ASPECT FULL PANORAMIC SUBTITLE  MODE H SIZE 92% 95% 95% 92%  [ SCREEN SIZE ]  Adjustment of EW-PIN  Straight  23. Select 6.EW-PIN and set the initial setting value  24. Adjust EW-PIN and make the 2nd vertical lines at the left right deges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.		Item					Те	st p	oint	Adjust	ment part		Description
Adjustment of H.SIZE II. Receive a cross-hatch signal.  18. Select 4.H-SIZE and make sure that the horizontal screen of the picture size is in the bellow table.  20. Press the MENU key and memorize the set value.  21. Input a NTSC VIDEO signal Polyaty from the EXT terminal make sure that the horizontal screen size is in the table be 22. Press the MENU key and memorize the set value.  ASPECT MODE FULL PANORAMIC SUBTITLE  H SIZE 92% 95% 92%  [SCREEN SIZE]  Adjustment of EW-PIN 23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  Straight Straight 26. Press the MENU key and memorize the set value.	-		of	gener Remo	ator te					3.H-CENT	:	14. S 15. A	elect 3.H-CENT and set the initial setting value.  djust H-CENT to make <b>C=D</b> .
of H.SIZE  18. Select 4.H-SIZE and set the initial setting value.  19. Adjust H-SIZE and make sure that the horizontal screen of the picture size is in the bellow table.  20. Press the MENU key and memorize the set value.  21. Input a NTSC VIDEO signal (60Hz) from the EXT terminal make sure that the horizontal screen size is in the table be 22. Press the MENU key and memorize the set value.  ASPECT MODE H SIZE 92% 95% 92%  [SCREEN SIZE]  Adjustment of EW-PIN  Characteristic Substitute  23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.			<b>-</b>	С	<b>-</b>					D			
of H.SIZE  18. Select 4.H-SIZE and set the initial setting value.  19. Adjust H-SIZE and make sure that the horizontal screen of the picture size is in the bellow table.  20. Press the MENU key and memorize the set value.  21. Input a NTSC VIDEO signal (60Hz) from the EXT terminal make sure that the horizontal screen size is in the table be 22. Press the MENU key and memorize the set value.  ASPECT MODE H SIZE 92% 95% 92%  [SCREEN SIZE]  Adjustment of EW-PIN  Characteristic Substitute  23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.													
of H.SIZE  18. Select 4.H-SIZE and set the initial setting value.  19. Adjust H-SIZE and make sure that the horizontal screen of the picture size is in the bellow table.  20. Press the MENU key and memorize the set value.  21. Input a NTSC VIDEO signal (60Hz) from the EXT terminal make sure that the horizontal screen size is in the table be 22. Press the MENU key and memorize the set value.  ASPECT MODE H SIZE 92% 95% 92%  [SCREEN SIZE]  Adjustment of EW-PIN  Straight  4. Adjust EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.						1					•		
MODE H SIZE 92% 95% 92%  [SCREEN SIZE]  Adjustment of EW-PIN  6.EW-PIN  23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.	of									4.H-SIZE		18. S 19. A of 20. P 21. Ir	elect 4.H-SIZE and set the initial setting value. djust H-SIZE and make sure that the horizontal screen size if the picture size is in the bellow table. ress the MENU key and memorize the set value. uput a NTSC VIDEO signal (60Hz) from the EXT terminal, and take sure that the horizontal screen size is in the table below.
[ SCREEN SIZE ]  Adjustment of EW-PIN  6.EW-PIN  23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.		_	_	•	F	ULI	L		PAN	IORAMIC	SUBTIT	LE	
Adjustment of EW-PIN  6.EW-PIN  23. Select 6.EW-PIN and set the initial setting value 24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.		H SI	ZE		9						92%		
Straight  Straight  24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.				[ SCREEN S					EN SIZ	ΣΕ]			
Straight  Straight  24. Adjust EW-PIN and make the 2nd.vertical lines at the left right edges of the screen straight. Also make sure that the vertical lines are straight.  25. Press the MENU key and memorize the set value.													
	_						Strai	ght				24. A	djust EW-PIN and make the 2nd.vertical lines at the left and ght edges of the screen straight. Also make sure that the 3rd ertical lines are straight.

Item	Measuring instrument	Test point	Adjustment part	Description		
Adjustment of TRAPEZ	Signal generator Remote control unit	Parallel ——	5.TRAPEZ	26. Receive a cross-hatch signal. 27. Select 5.TRAPEZ with the FUNCTION UP/DOWN key. 28. Set the initial setting value of TRAPEZ with the FUNCTION or + key. 29. Adjust TRAPEZ and bring the VERTICAL lines at the right and left edges of the screen parallel. 30. Press the MENU key and memorize the set value.		
CORNER UP/ LOW	Signal generator Remote control unit		7.COR-PIN 8.COR-UP 9.COR-LO	<ul> <li>31. Select 9.COR-LO with the FUNCTION UP / DOWN key.</li> <li>32. Set the initial setting value of COR-LO with the FUNCTION – or + key.</li> <li>33. Adjust COR-LO, and bring the straight line at the low corner.</li> <li>34. Select 8.COR-UP with the FUNCTION UP / DOWN key.</li> <li>35. Set the initial setting value of COR-UP with the FUNCTION – or + key.</li> <li>36. Adjust COR-UP, and bring the straight line at the upper corner.</li> <li>37. If the extreme upper &amp; lower corners and a little pin or barrel, chose 7.COR-PIN and adjust.</li> <li>And adjust to get the straight. Store the set value.</li> </ul>		
Adjustment of ANGLE	Signal generator Remote control unit		10.ANGLE	In case where there is a parallelogrammical distortion of images on the screen. (Fig. A)  38. Select 10.ANGLE with the FUNCTION UP / DOWN key.  39. Adjust ANGLE, and bring the VERTICAL lines straight.  40. Press the MENU key and memorize the set value.		
			Fig.	. A		

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of BOW	Signal generator Remote control unit		11.BOW	<ul> <li>In case where there is a bow-shaped distortion of images on the screen. (Fig.C)</li> <li>41. Select 11.BOW with the FUNCTION UP/DOWN key.</li> <li>42. Adjust BOW, and bring the VERTICAL lines straight.</li> <li>43. Press the MENU key and memorize the set value.</li> </ul>
			Fig. C	
		]	 	I
Adjustment of V-S.CR & V.LINE			12.V-S.CR 13.V.LIN.  TOP  CENTER  BOTTOM	<ul> <li>When the vertical linearity has been deteriorated remarkably, perform the following steps.</li> <li>44. Receive a cross-hatch signal.</li> <li>45. Select 13. V.LIN with the FUNCTION UP / DOWN key.</li> <li>46. Set the initial setting value of 13. V.LIN with the FUNCTION -/+ key.</li> <li>47. Select 12. V-S.CR. with the FUNCTION UP / DOWN key.</li> <li>48. Set the initial setting value of 12. V-S.CR. with the FUNCTION -/+ key.</li> <li>49. Adjust 13. V.LIN and 12. V-S.CR. so that the spaces of each line on TOP, CENTER, and BOTTOM become uniform.</li> <li>NOTE: Do not adjust "PANORAMIC" &amp; "SUBTITLE" mode.</li> </ul>
				At first the adjustment in 100Hz FULL mode should be done, then the data for the other aspect mode is corrected in the respective value at the same time. And confirm the deflection adjustment initial setting value in 120Hz (NTSC EXT mode) FULL mode. If the adjustment in 100Hz each aspect mode has been done and stored, the data for the same aspect modes in 120Hz is corrected in the respective value. Only the data for the other aspect mode in 120Hz is corrected for itself.

AV28L2EUGR AV28L2EUBL AV28L2EUGY

#### **AUDIO CIRCUIT ADJUSTMENT**

• Do not touch **3. AUDIO** adjustment of the SERVICE MENU as it requires no adjustment. If values had changed for the some reason, set the initial values in the following table.

#### 3. AUDIO(Do not adjust)

Setting item	Variable range	fixed value
1. ERR LIMIT	00H∼FFH	10H
2. A2 ID THR	00H~FFH	19H

#### REPLACEMENT OF CHIP COMPONENT

#### **■ CAUTIONS**

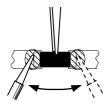
- 1. Avoid heating for more than 3 seconds.
- 2. Do not rub the electrodes and the resist parts of the pattern.
- 3. When removing a chip part, melt the solder adequately.
- 4. Do not reuse a chip part after removing it.

#### **■ SOLDERING IRON**

- 1. Use a high insulation soldering iron with a thin pointed end of it.
- 2. A 30w soldering iron is recommended for easily removing parts.

#### **■ REPLACEMENT STEPS**

- 1. How to remove Chip parts
- Resistors, capacitors, etc
  - (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

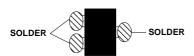


(2) Shift with tweezers and remove the chip part.

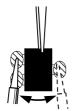


#### ◆ Transistors, diodes, variable resistors, etc

(1) Apply extra solder to each lead.



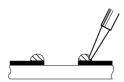
(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



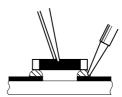
Note: After removing the part, remove remaining solder from the pattern.

#### 2. How to install Chip parts

- Resistors, capacitors, etc
  - (1) Apply solder to the pattern as indicated in the figure.

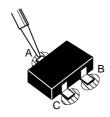


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

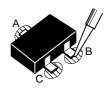


#### ◆ Transistors, diodes, variable resistors, etc

- (1) Apply solder to the pattern as indicated in the figure.
- (2) Grasp the chip part with tweezers and place it on the solder.
- (3) First solder lead A as indicated in the figure.



(4) Then solder leads **B** and **C**.



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## STANDARD CIRCUIT DIAGRAM

#### ■ NOTE ON USING CIRCUIT DIAGRAMS

#### 1. SAFETY

The components identified by the ▲ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

#### 2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal :PAL Colour bar signal

(2)Setting positions of each knob/button and

variable resistor :Original setting position

when shipped

(3)Internal resistance of tester :DC 20kΩ/V

(4)Oscilloscope sweeping time  $:H \Rightarrow 20\mu S/div$ 

:V ⇒ 5mS/div :Others ⇒ Sweeping time

:Others ⇒ Sweeping time is

specified

(5)Voltage values :All DC voltage values

\* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

#### 3.INDICATION OF PARTS SYMBOL [EXAMPLE]

●In the PW board :R1209→R209

## 4.INDICATIONS ON THE CIRCUIT DIAGRAM (1)Resistors

#### Resistance value

No unit  $:[\Omega]$ K  $:[K\Omega]$ M  $:IM\Omega$ 1

Rated allowable power

No indication :1/16[W]
Others :As specified

■Type

No indication :Carbon resistor

OMR :Oxide metal film resistor

MFR :Metal film resistor

MPR :Metal plate resistor

UNFR :Uninflammable resistor

FR :Fusible resistor

\*Composition resistor 1/2 [W] is specified as 1/2S or Comp.

#### (2)Capacitors

Capacitance value

 $\begin{array}{ll} \mbox{1 or higher} & :[pF] \\ \mbox{less than 1} & :[\mu F] \end{array}$ 

Withstand voltage

No indication :DC50[V]

AC indicated :AC withstand voltage [V]
Others :DC withstand voltage [V]

\*Electrolytic Capacitors

47/50[Example]:Capacitance value [µF]/withstand voltage[V]

Type
 No indication
 MY
 Mylar capacitor
 MM
 Metalized mylar capacitor

PP :Polypropylene capacitor
MPP :Metalized polypropylene capacitor

MF :Metalized film capacitor
TF :Thin film capacitor
BP :Bipolar electrolytic capacitor

TAN :Tantalum capacitor

(3)Coils
No unit :[µH]

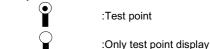
Others :As specified

#### (4)Power Supply



\*Respective voltage values are indicated

#### (5)Test point



#### (6)Connecting method



#### (7)Ground symbol

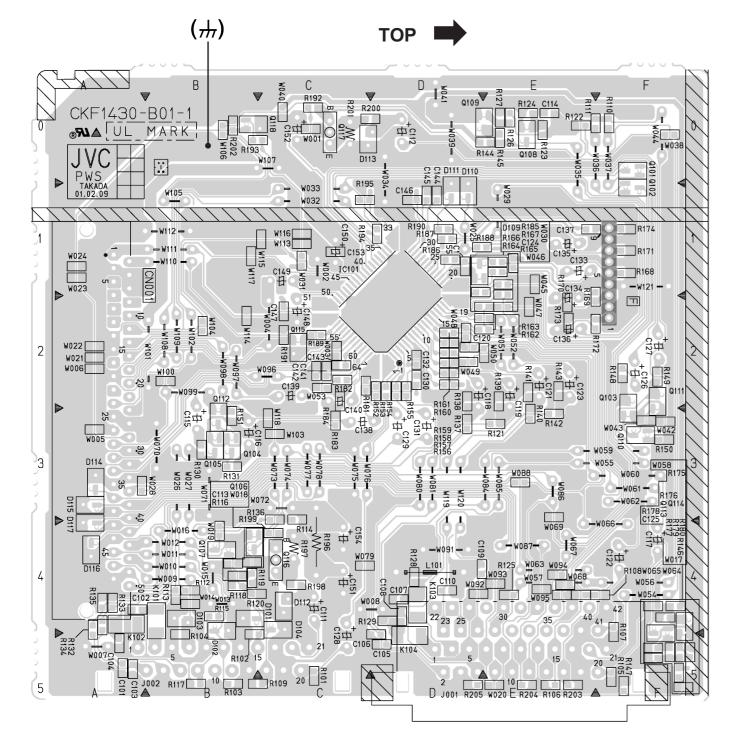
:ISOLATED(NEUTRAL) side ground

≟ :EARTH ground

#### **5.NOTE FOR REPAIRING SERVICE**

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : ( $\bot$ ) side GND and the ISOLATED(NEUTRAL) : (ئ) side GND. Therefore, care must be taken for the following points.

- (1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus ( oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.
- ♦ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.



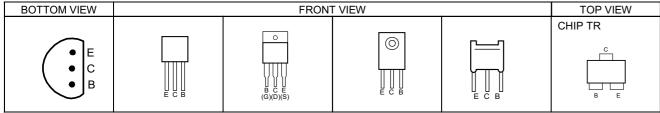
2-32 No.51778 Apr. 2001 No.51778

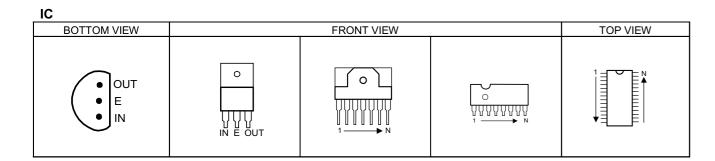
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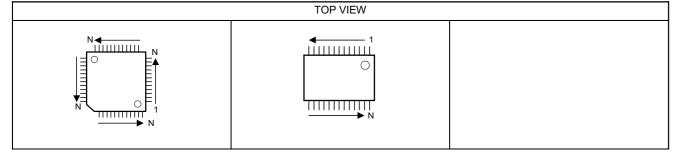
#### **SEMICONDUCTOR SHAPES**

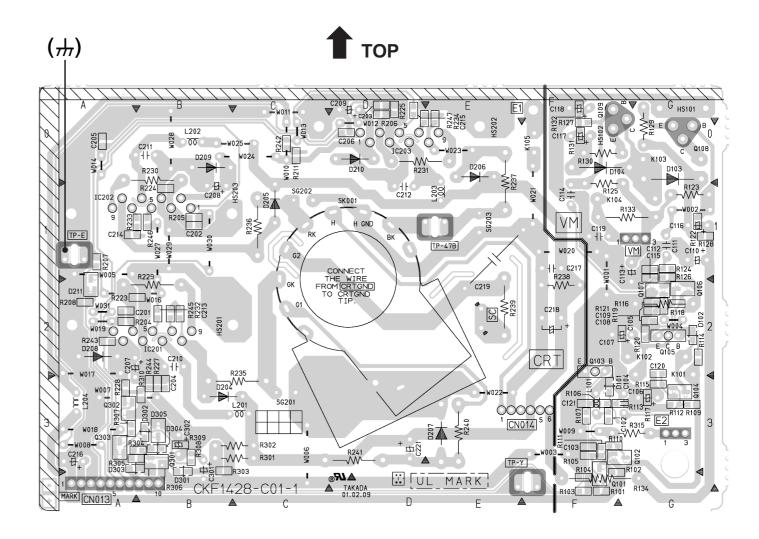
#### **TRANSISTOR**



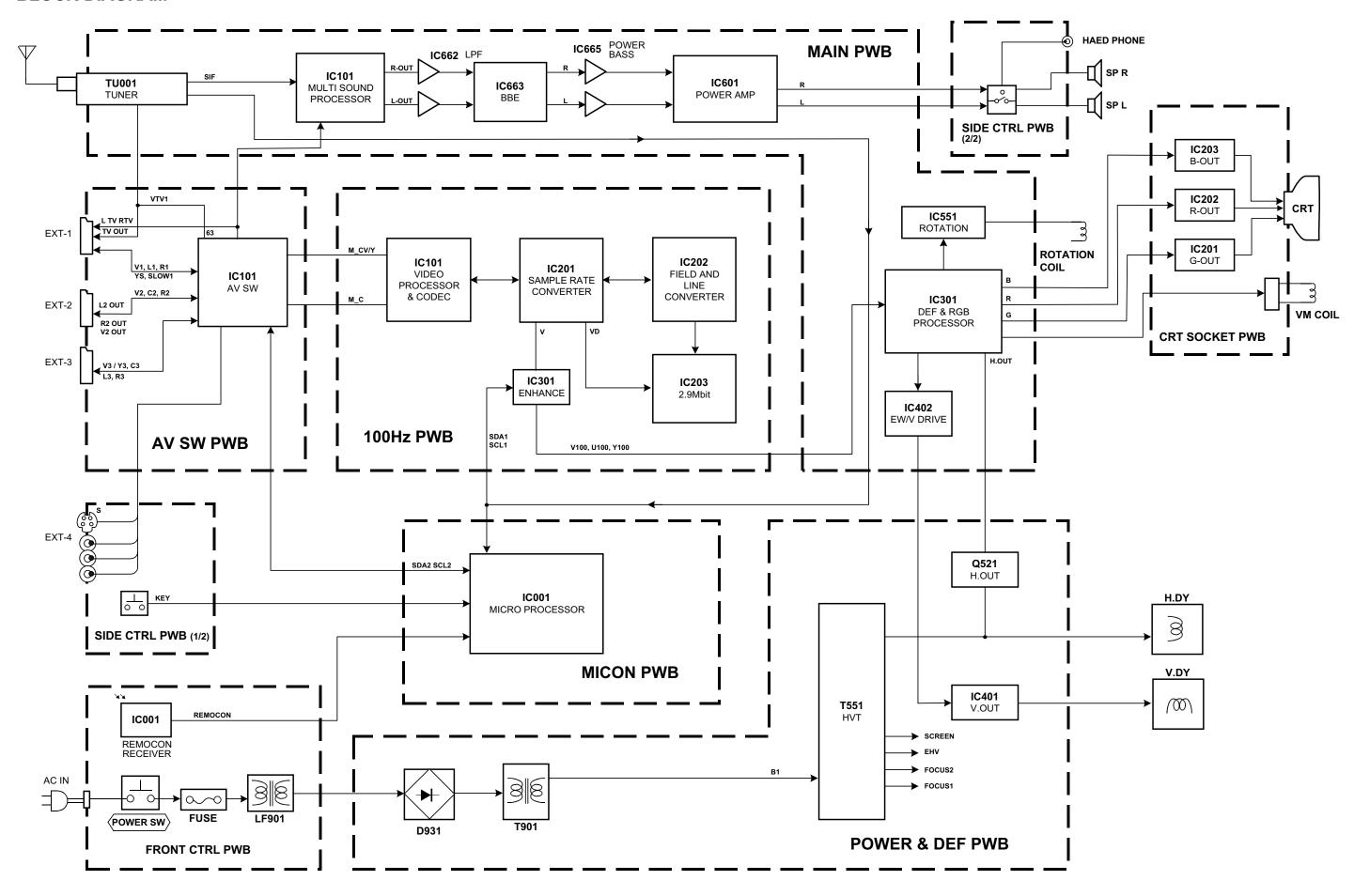


#### CHIP IC

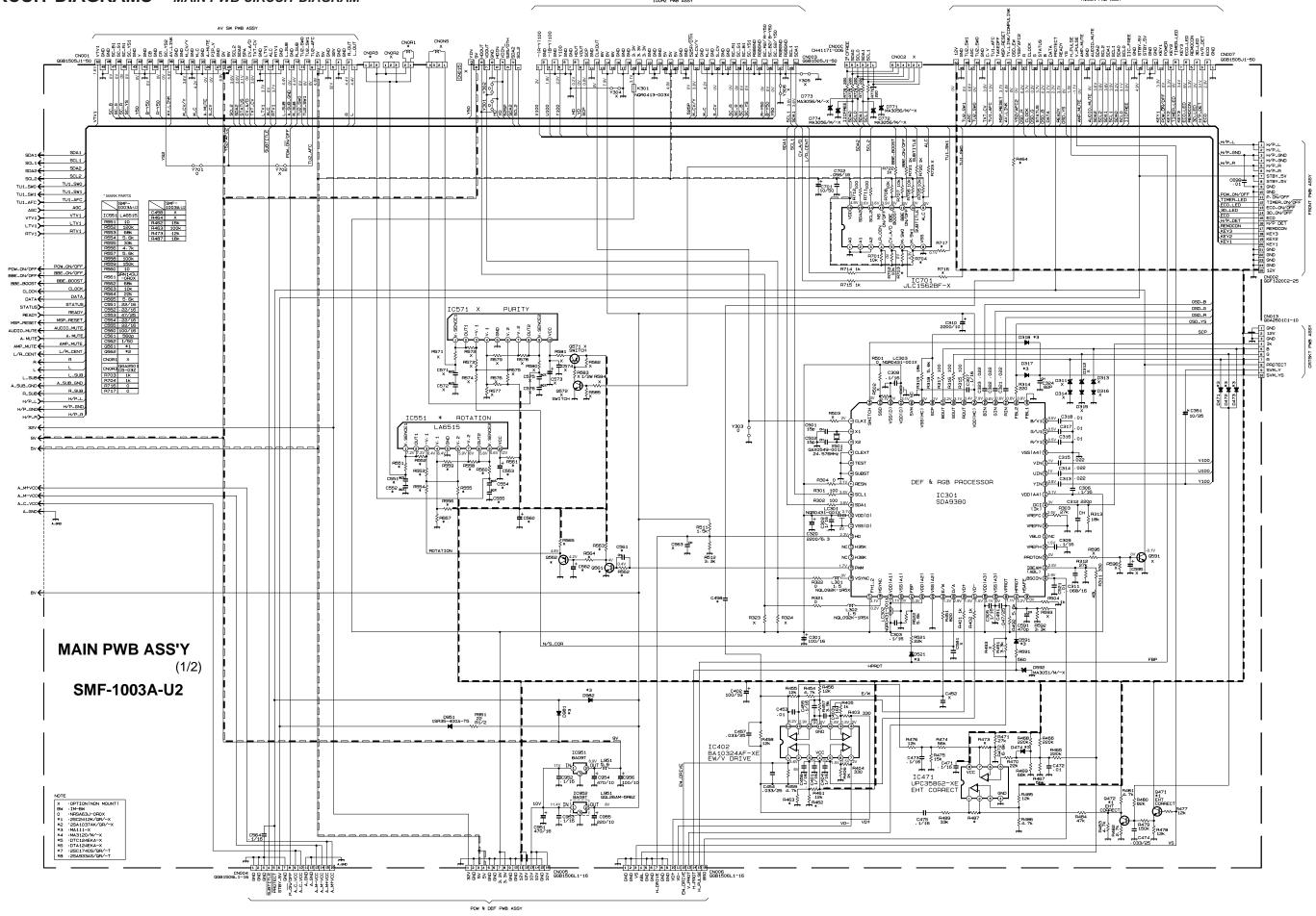


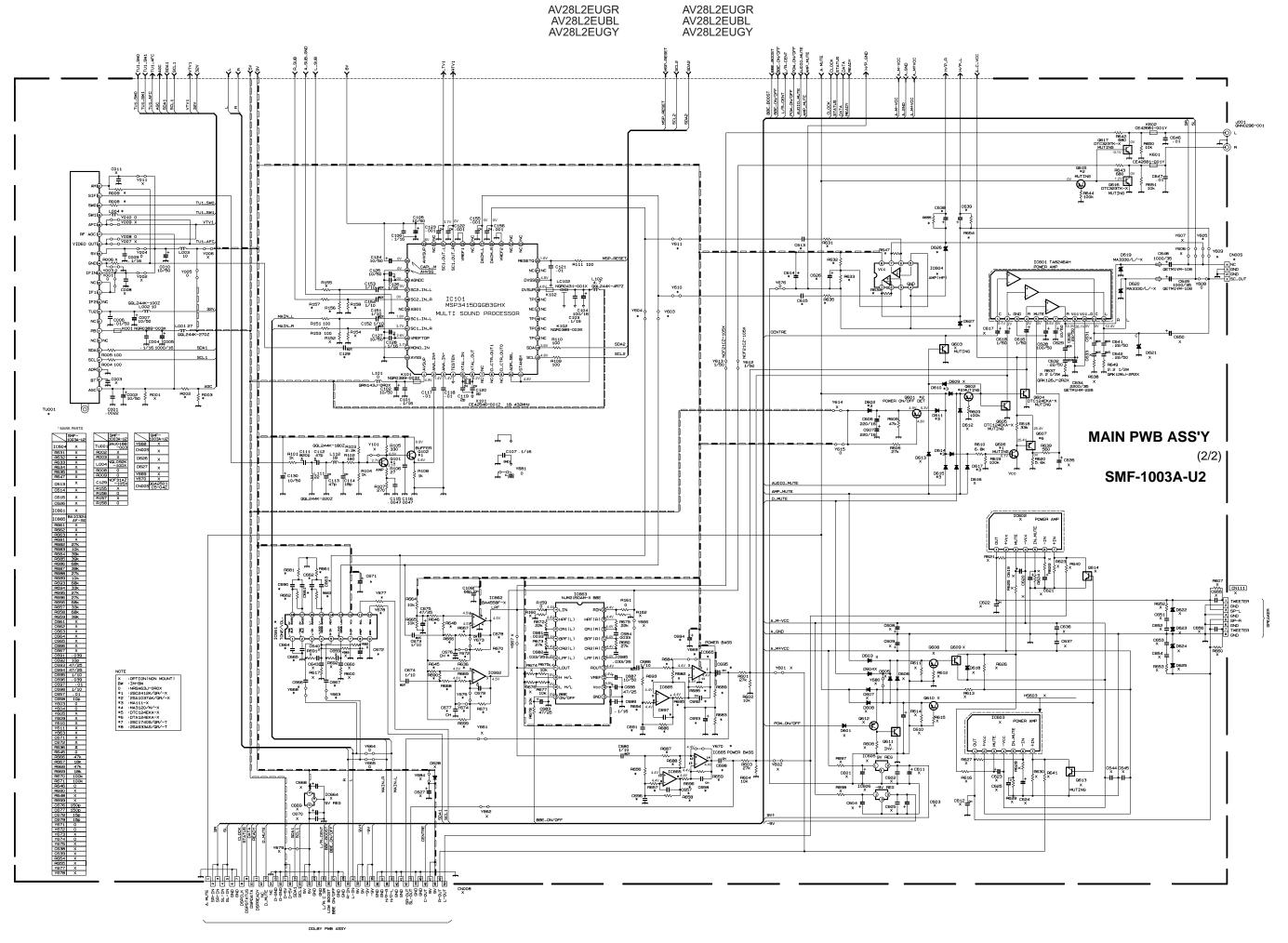


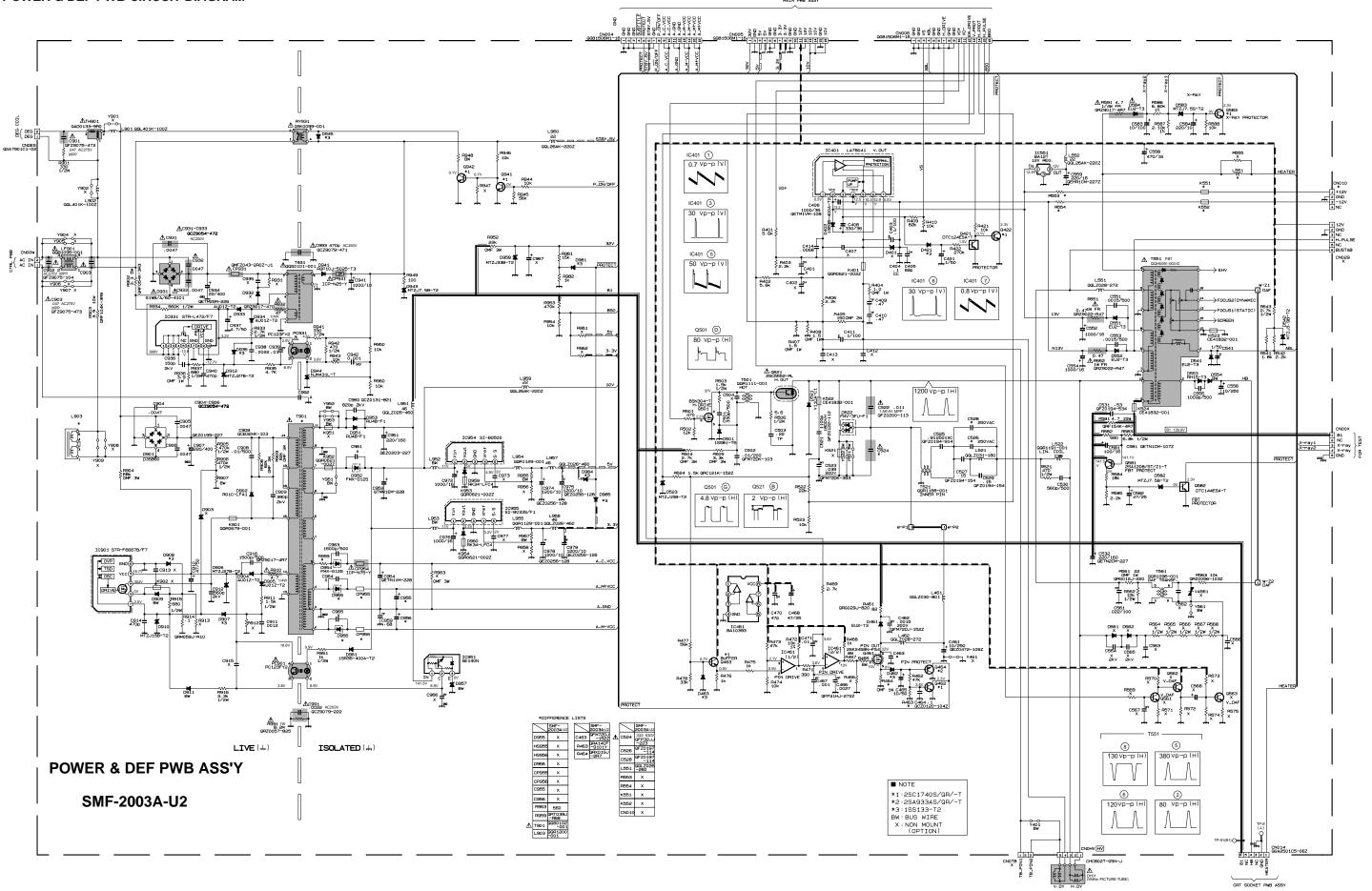
#### **BLOCK DIAGRAM**

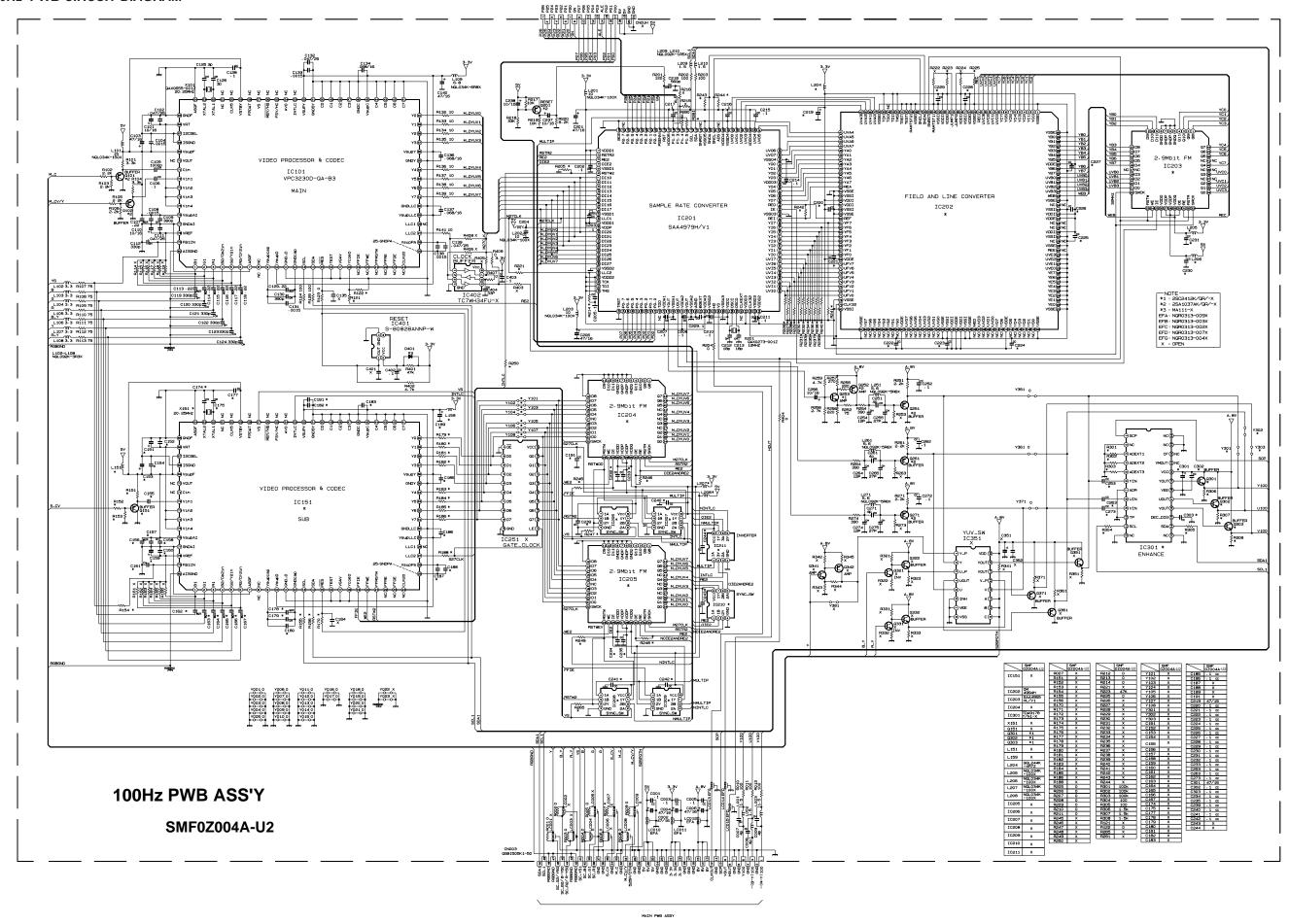


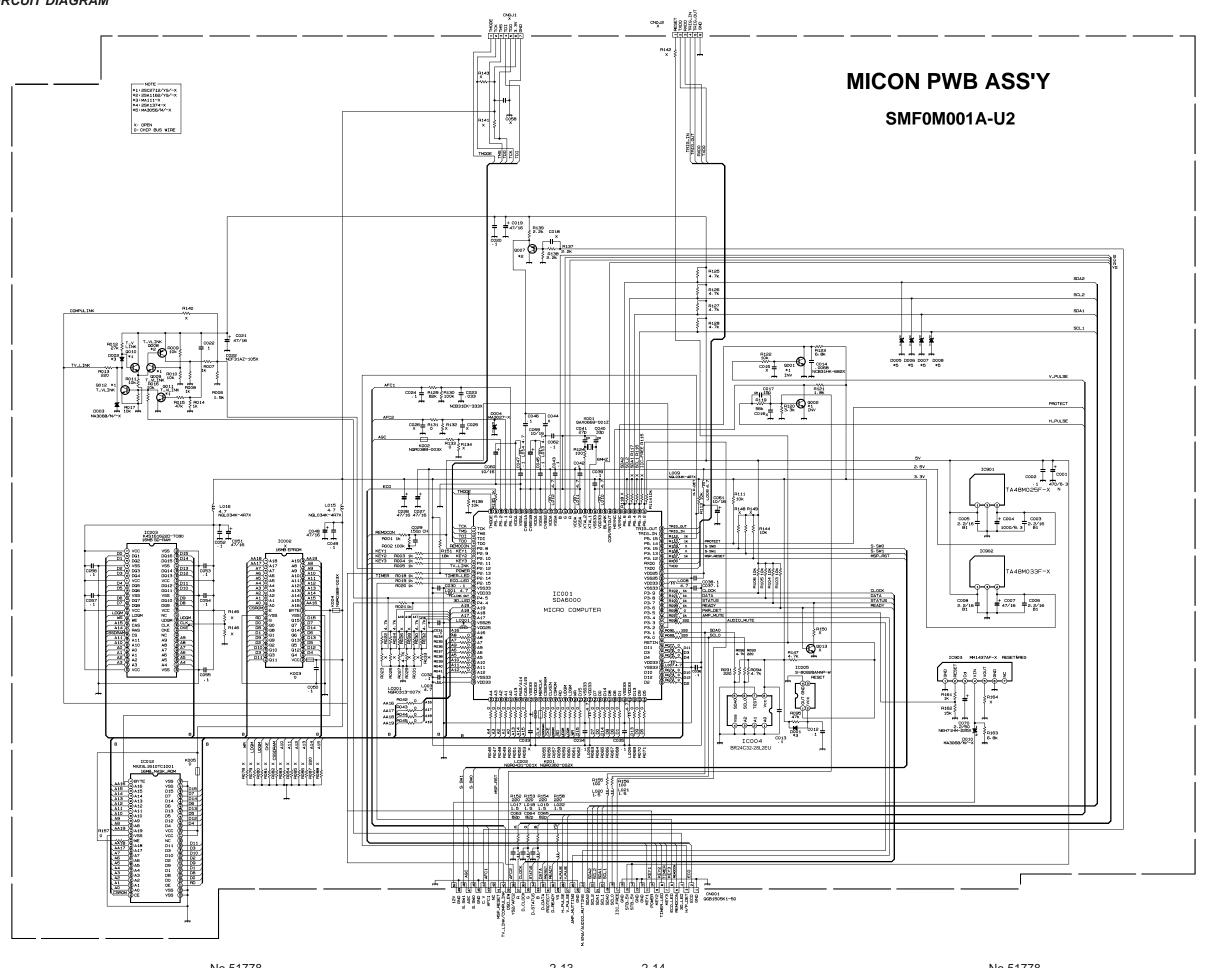
#### CIRCUIT DIAGRAMS MAIN PWB CIRCUIT DIAGRAM

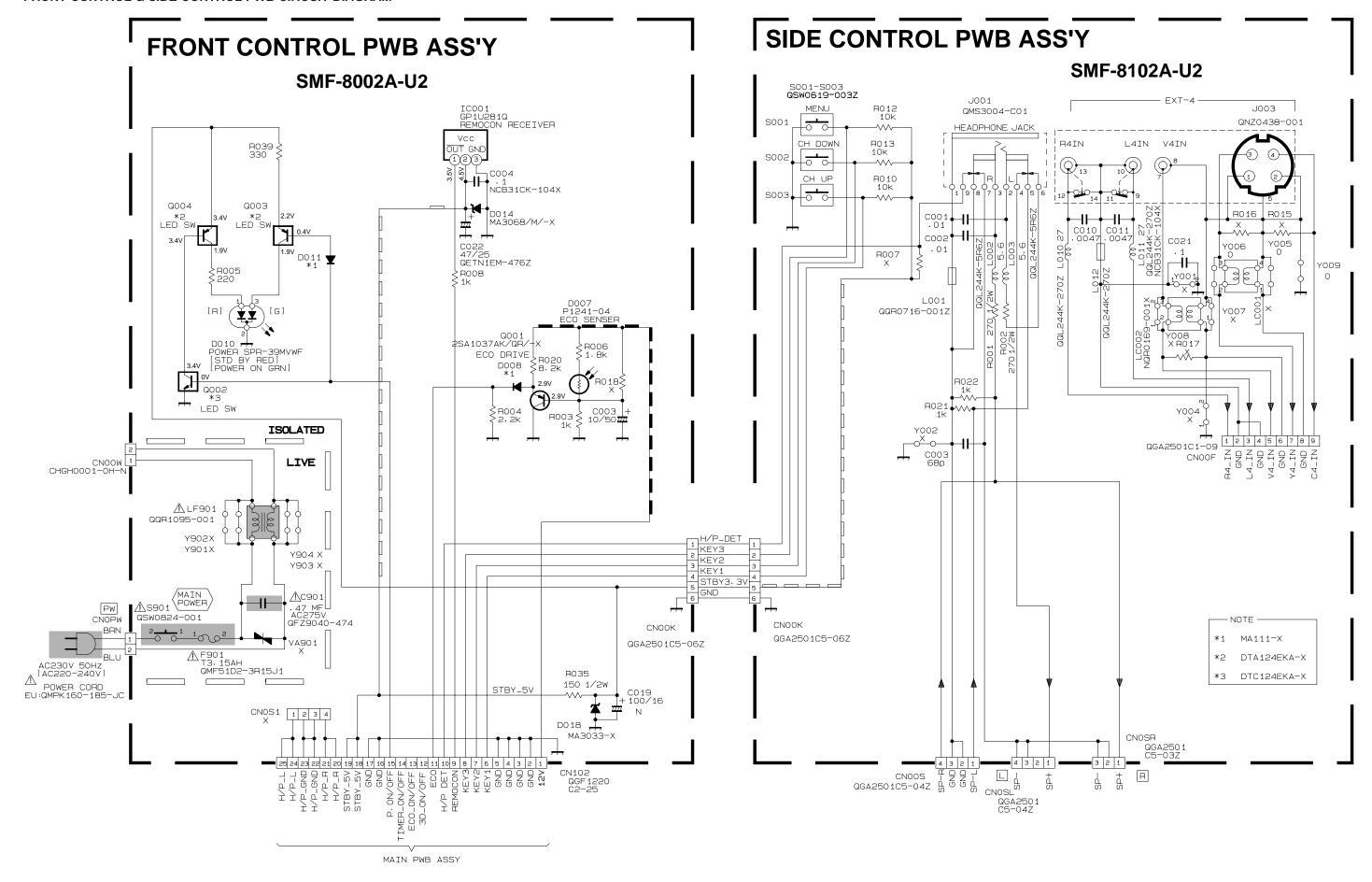


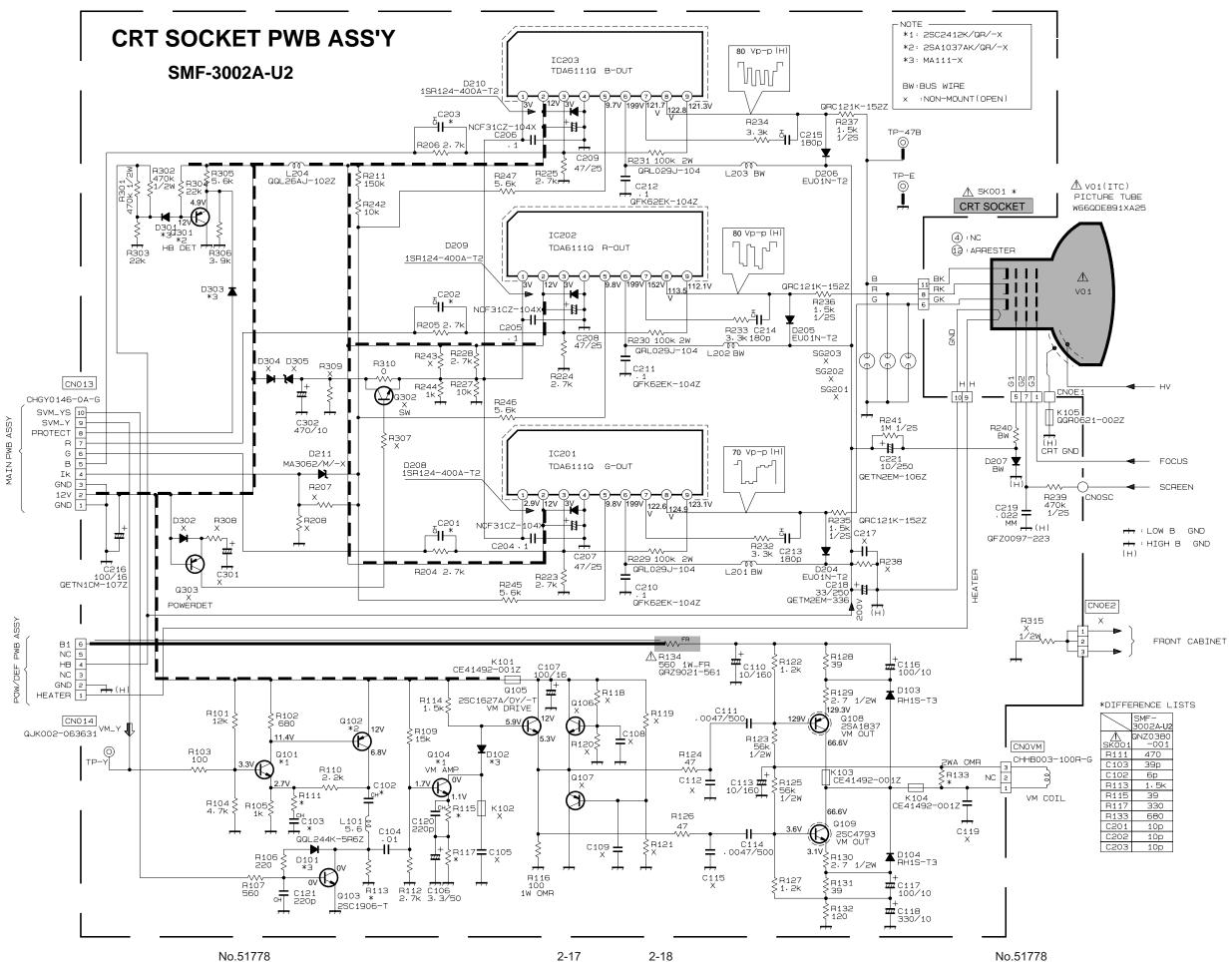






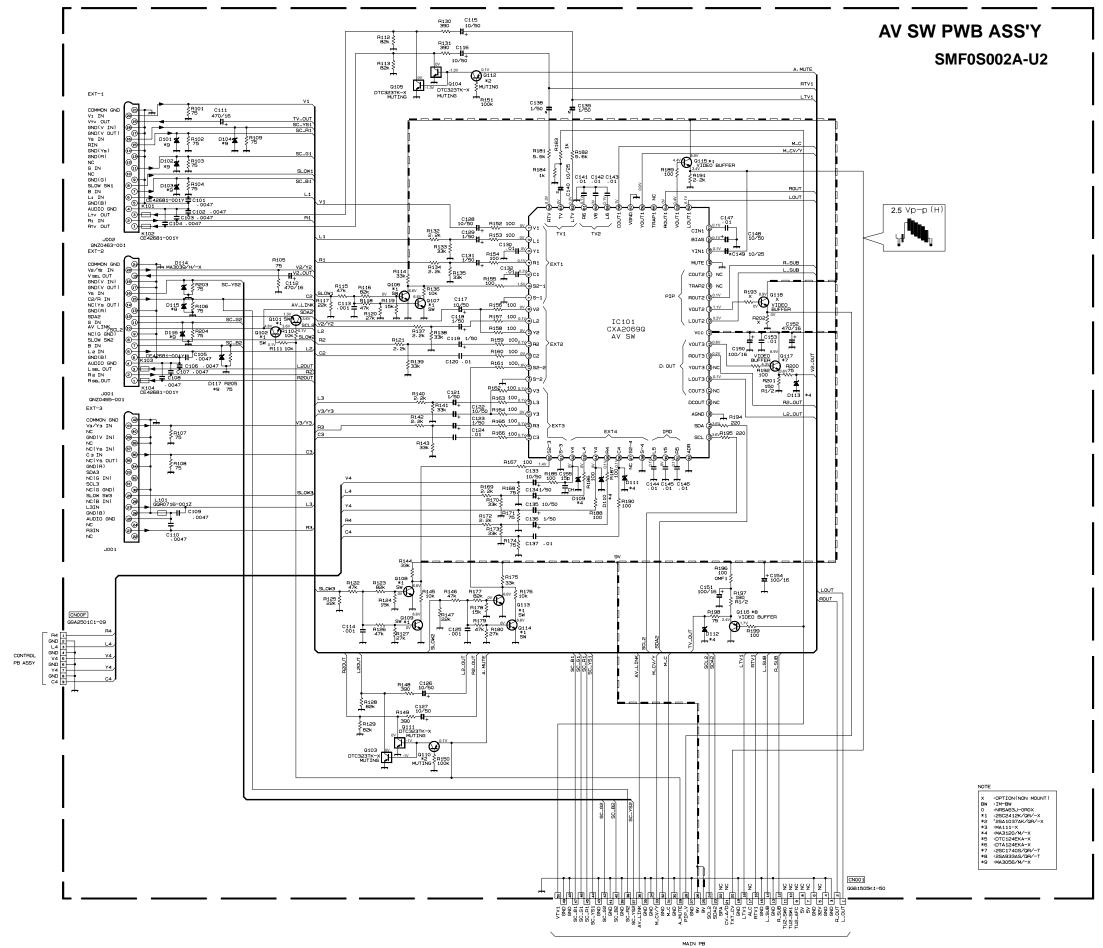




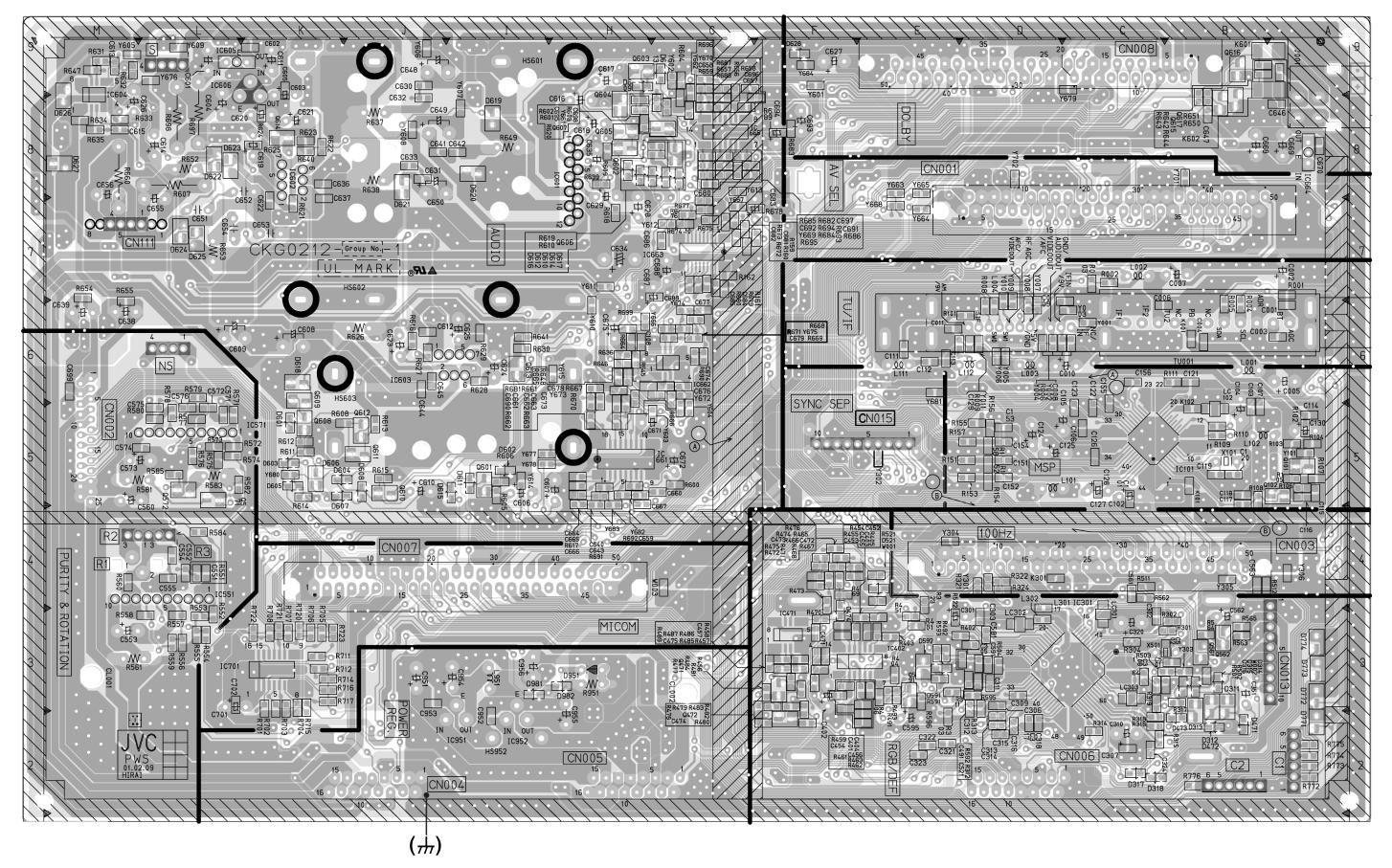


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#### AV SW PWB CIRCUIT DIAGRAM

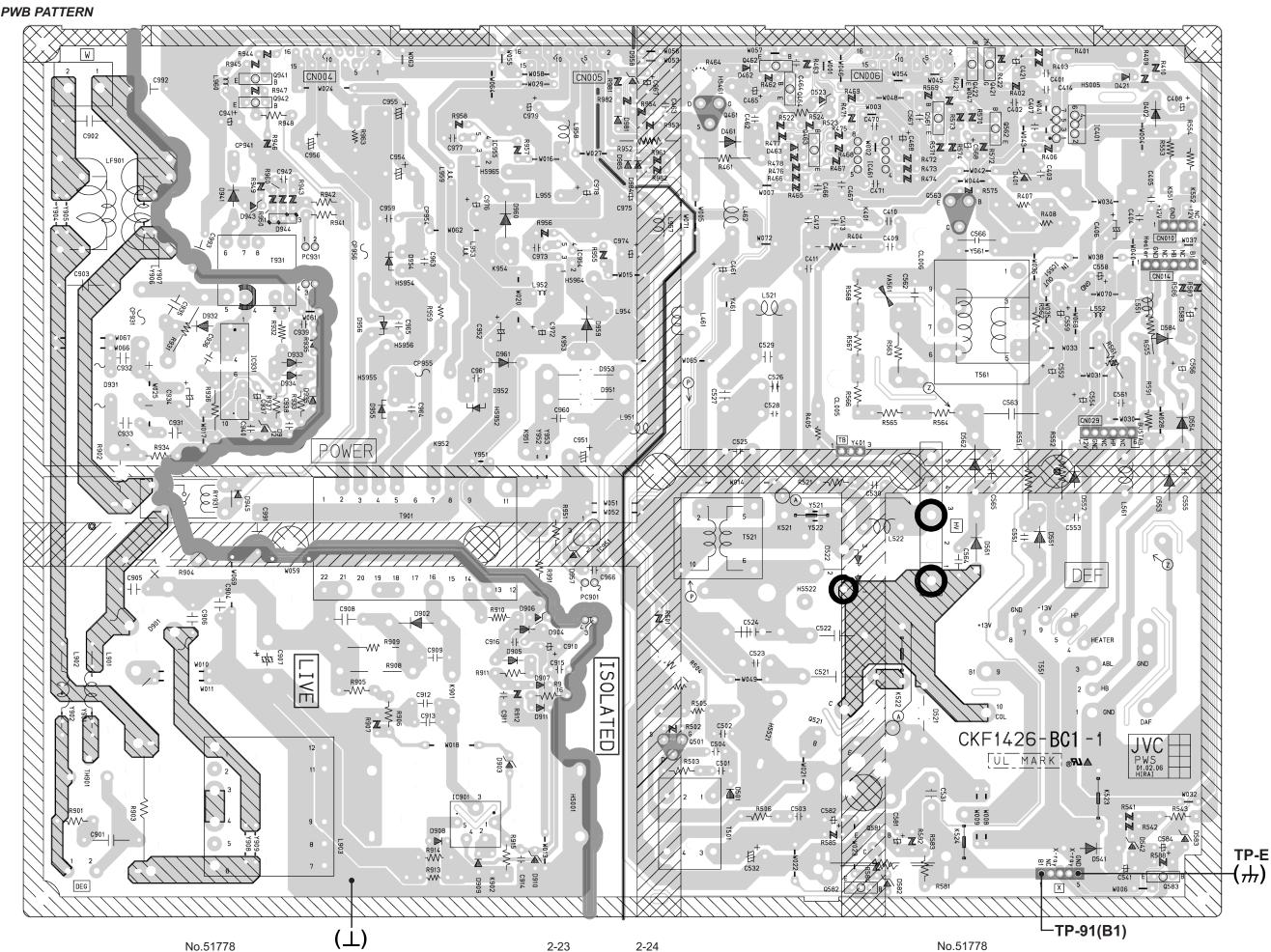


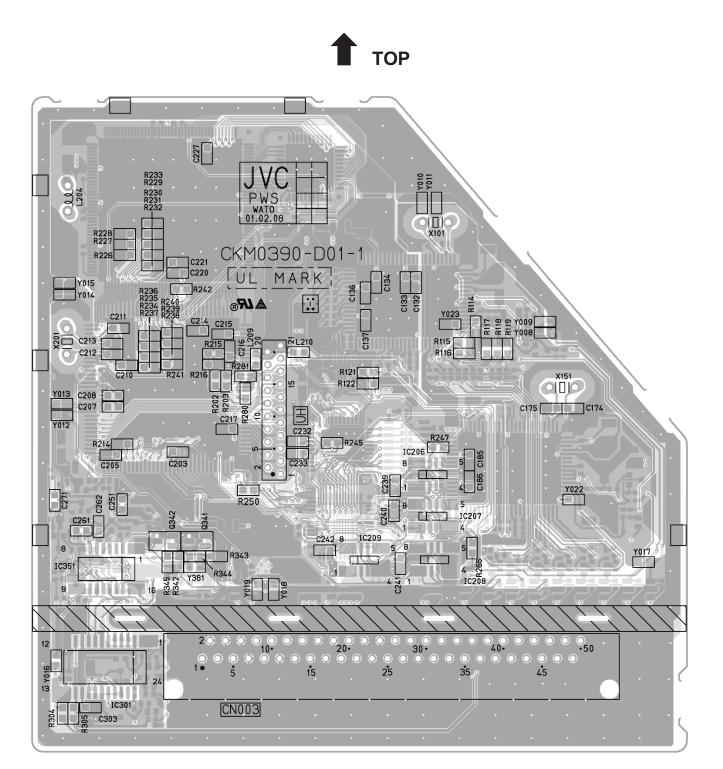




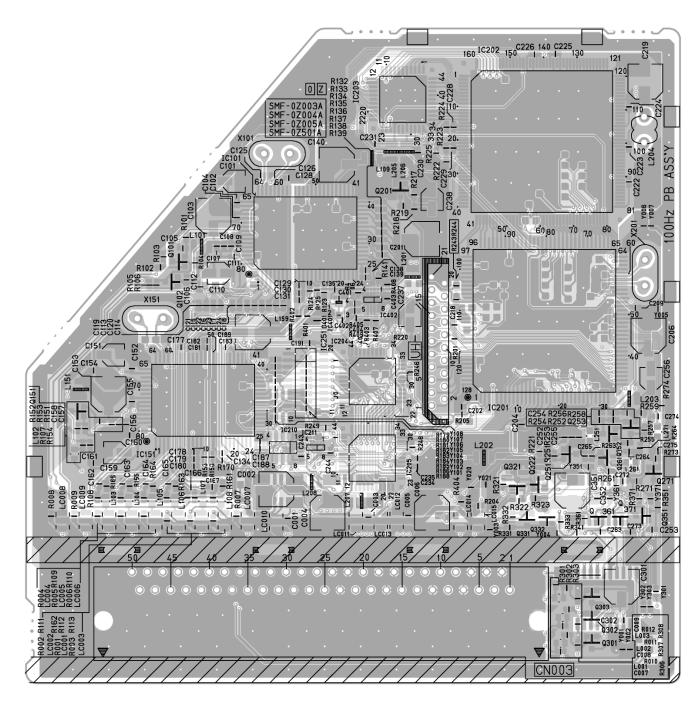
#### **POWER & DEF PWB PATTERN**

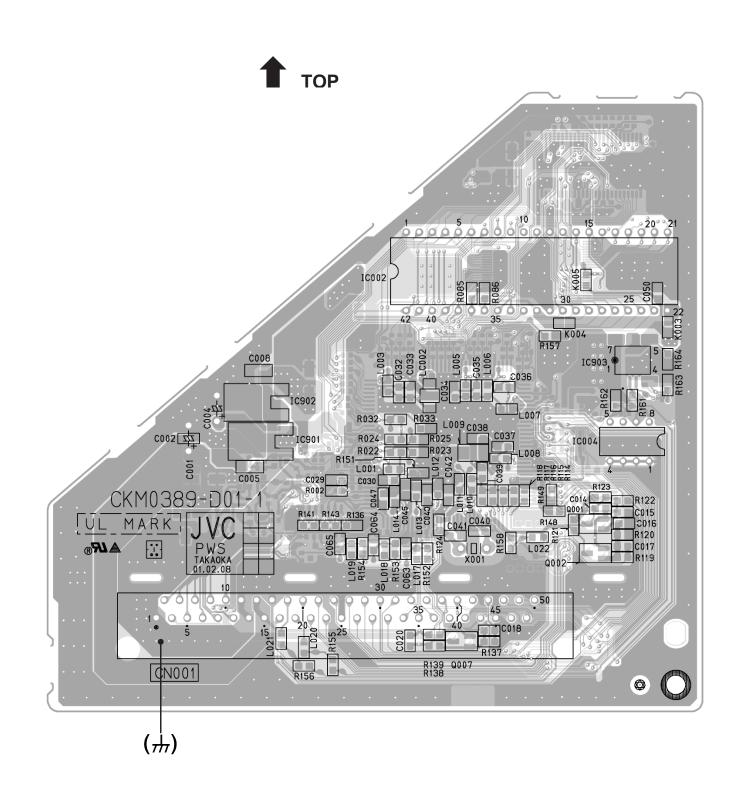
**FRONT** 

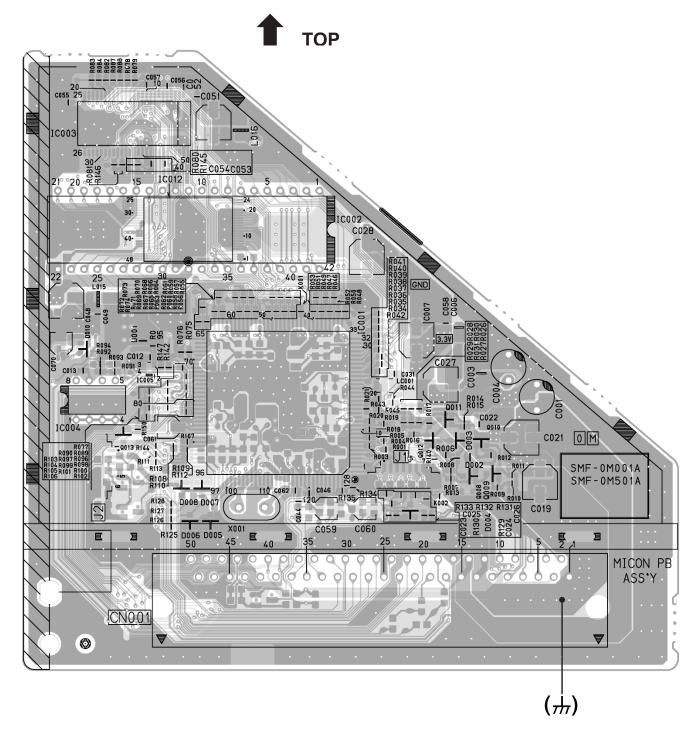




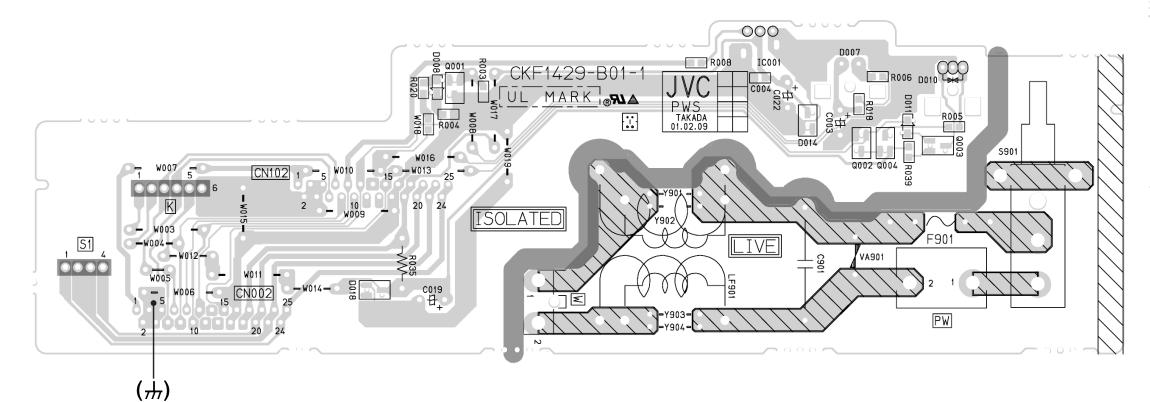




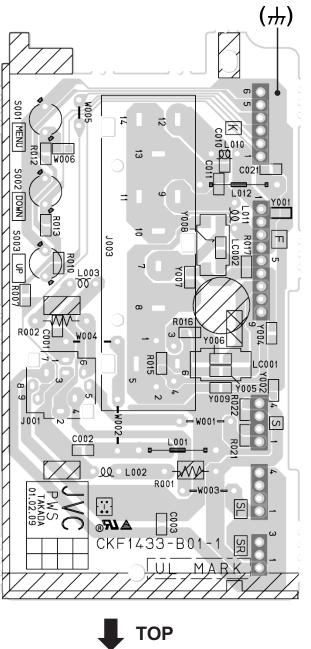








#### SIDE CONTROL PWB PATTERN



## **PARTS LIST**

#### **CAUTION**

- The parts identified by the ⚠ symbol are important for the safety. Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines —— in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

#### ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

	RESISTORS	CAPACITORS		
CR	Carbon Resistor	C CAP.	Ceramic Capacitor	
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor	
PR	Plate Resistor	M CAP.	Mylar Capacitor	
V R	Variable Resistor	HV CAP.	High Voltage Capacitor	
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor	
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor	
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor	
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor	
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor	
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor	
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor	
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor	
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor	
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor	
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor	
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor	
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor	
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor	

TOLERANCES									
F	G	J	К	М	N	R	Н	Z	Р
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

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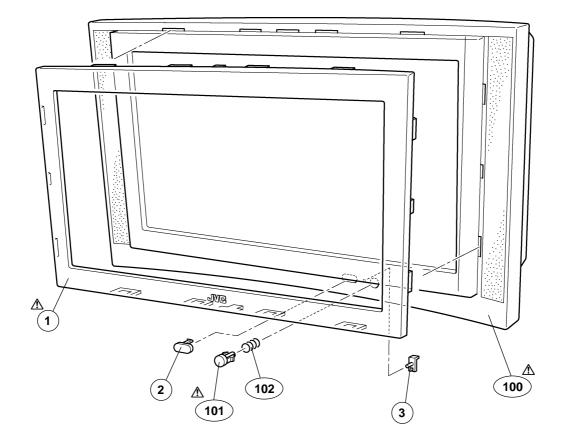
### **USING PW BOARD & REMOTE CONTROL UNIT**

Model PWB ASS'Y	AV28L2EUGR	AV28L2EUBL	AV28L2EUGY
MAIN PWB	SMF-1003A-U2	<b>←</b>	←
POWER & DEF. PWB	SMF-2003A-U2	<b>←</b>	<b>←</b>
CRT SOCKET PWB	SMF-3002A-U2	<b>—</b>	<b>←</b>
FRONT CONTROL PWB	SMF-8002A-U2	<b>↓</b>	<b>←</b>
SIDE CONTROL PWB	SMF-8102A-U2	<b>←</b>	<b>←</b>
MICON PWB	SMF0M001A-U2	<b>←</b>	<b>←</b>
AV SW PWB	SMF0S002A-U2	<b>\</b>	<b>←</b>
100Hz PWB	SMF0Z004A-U2	<del></del>	<del></del>
REMOTE CONTROL UNIT	RM-C54-1C	<b>—</b>	<b>←</b>

## **EXPORTED VIEW PARTS LIST (1)**

⚠ Ref.No.	Part No.	Part Name	Description	
AV28L2E	UGR / AV28L2EUE	BL /AV28L2EUGY		
↑ 1 ↑ 1 ↑ 1 2 3 ↑ 100 ↑ 101 102	LC11007-001B-U LC11007-002B-U LC11007-003A-U LC31203-001A-C LC31202-001A-C LC11005-001A-U LC31201-002A-U AEM3149-001-E	FRONT FRAME FRONT FRAME FRONT FRAME REMOCON WINDOW L.E.D.LENS F.CABINET ASSY POWER KNOB SPRING	[AV28L2EUGR] [AV28L2EUBL] [AV28L2EUGY] Inc.No.101~102 (SERVICE)	

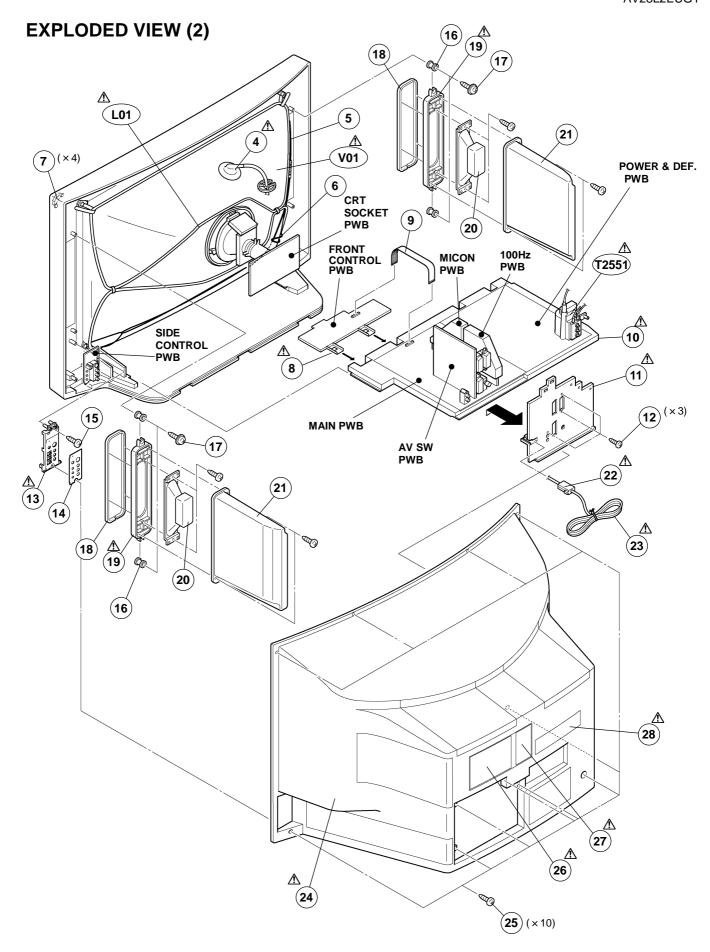
## **EXPLODED VIEW (1)**



## **EXPLODED VIEW PARTS LIST (2)**

⚠ Ref.No.	Part No.	Part Name	Description
-----------	----------	-----------	-------------

AV28L2EU	GR / AV28L2EUBI	L /AV28L2EUGY	
↑ V01 ↑ L01 ↑ T2551 ↑ 5 6 7 ↑ 8	W66QDE891XA25 QQW0100-001 QQH0091-003-I2 QNZ0369-003 WJY0001-011A WJY0013-002A LC20725-001A-U LC11009-001B-U	PICTURE TUBE(ITC) DEG.COIL FBT ANODE WIRE E-BRAIDED ASSY BRAIDED SUB ASSY CRT SPACER CONTROL BASE	Inc.DY,PC MAGNET,WEDGE (SERVICE)With ANODE WIRE (×4)
↑ 10 ↑ 11 12 ↑ 13 14 15 16	CHFD125-11BD LC10716-002F-U LC11010-001A-U QYSBSB3012M LC10856-001B-U LC31205-002A-U QYSBSAG4016N AEM4087-001-E	FFC WIRE CHASSIS BASE AV BOARD TAPPING SCREW SIDE CONTROL BASE CONTROL SHEET TAPPING SCREW BUSHING	(×3)For AV BOARD  (×1)For SIDE CONTROL BASE (×4)
17 18 19 20 21 1 122 13 14 224	LC40506-001A AEM3029-A11-E LC11017-001A-U QA50072-001 LC10858-001B-U CM46618-A01-E QMPK160-185-JC LC11011-001C-U	TAPPING SCREW STICK SHEET SPEAKER ADAPTER SPEAKER SPEAKER BOX POWER CORD CLAMP POWER CORD REAR COVER	( × 4) ( × 2) ( × 2) ( × 2) ( × 2)
25 \$\frac{1}{26}\$ \$\frac{1}{26}\$ \$\frac{1}{26}\$ \$\frac{1}{27}\$ \$\frac{1}{28}\$ \$\frac{1}{28}\$ \$\frac{1}{28}\$ \$\frac{1}{28}\$ \$\frac{1}{28}\$	QYSBSAG4016N LC20379-008A-U LC20379-012A-U LC20379-019A-U LC30789-002A-U LC20380-008A-U LC20380-012A-U LC20380-023A-U	TAPPING SCREW RATING LABEL RATING LABEL RATING LABEL WARNING LABEL RATING LABEL RATING LABEL RATING LABEL RATING LABEL	(×10)For REAR COVER [AV28L2EUGR] [AV28L2EUBL] [AV28L2EUGY]  [AV28L2EUGR] [AV28L2EUGR] [AV28L2EUGY]



## AV28L2EUGR / AV28L2EUBL / AV28L2EUGY

#### PRINTED WIRING BOARD PARTS LIST

#### ■MAIN P.W. BOARD ASS'Y (SMF-1003A-U2)

∆ Symbol No.	Part No.	Part Name	Description	∆ Symbol No.	Part No.	Part Name	Description
RES	ISTOR		_	RES	ISTOR		
R1004-05 R1008-09 R1101 R1102 R1103 R1104 R1105 R1106	NRSA63J-101X NRSA63J-0R0X NRSA63J-102X NRSA63J-181X NRSA63J-222X NRSA63J-102X NRSA63J-331X NRSA63J-270X	MG R MG R MG R MG R MG R MG R MG R	100Ω 1/16W J 0.0Ω 1/16W J 1kΩ 1/16W J 180Ω 1/16W J 2.2kΩ 1/16W J 1kΩ 1/16W J 330Ω 1/16W J 27Ω 1/16W J	R1521 R1522 R1551 R1552 R1553 R1554 R1555 R1556	NRSA63J-223X NRSA63J-562X NRSA63J-100X NRSA63J-124X NRSA63J-683X NRSA63J-562X NRSA63J-333X NRSA63J-472X	MG R MG R MG R MG R MG R MG R MG R	22kΩ 1/16W J 5.6kΩ 1/16W J 10Ω 1/16W J 120kΩ 1/16W J 68kΩ 1/16W J 5.6kΩ 1/16W J 33kΩ 1/16W J 4.7kΩ 1/16W J
R1107 R1108 R1109-11 R1151 R1153 R1156 R1158-59 R1161	NRSA63J-271X NRSA63J-102X NRSA63J-101X NRSA63J-101X NRSA63J-101X NRSA63J-0ROX NRSA63J-0ROX NRSA63J-0ROX	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{cccc} 270\Omega & 1/16W & J \\ 1k\Omega & 1/16W & J \\ 100\Omega & 1/16W & J \\ 100\Omega & 1/16W & J \\ 100\Omega & 1/16W & J \\ 0.0\Omega & 1/16W & J \\ \end{array}$	R1557 R1558 R1559 R1560 R1561 R1562 R1563 R1564	NRSA63J-562X NRSA63J-104X NRSA63J-154X NRSA63J-100X QRN143J-0R0X NRSA63J-683X NRSA63J-103X NRSA63J-223X	MG R MG R MG R MG R C R MG R MG R MG R	5.6kΩ 1/16W J 100kΩ 1/16W J 150kΩ 1/16W J 10Ω 1/16W J 0.0Ω 1/4W J 68kΩ 1/16W J 10kΩ 1/16W J 22kΩ 1/16W J
R1301-02 R1303 R1304 R1311 R1312 R1313 R1314 R1315-17	NRSA63J-101X NRSA63J-273X NRSA63J-0ROX NRSA63J-331X NRSA63J-273X NRSA63J-183X NRSA63J-221X NRSA63J-101X	MG R MG R MG R MG R MG R MG R MG R	100Ω 1/16W J 27kΩ 1/16W J 0.0Ω 1/16W J 330Ω 1/16W J 27kΩ 1/16W J 18kΩ 1/16W J 220Ω 1/16W J 100Ω 1/16W J	R1565 R1591 R1592 R1601 R1602 R1603 R1604 R1605	NRSA63J-562X NRSA63J-561X NRSA63J-332X NRSA63J-273X NRSA63J-103X NRSA63J-103X NRSA63J-103X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R	5.6kΩ 1/16W J 560Ω 1/16W J 3.3kΩ 1/16W J 27kΩ 1/16W J 10kΩ 1/16W J 27kΩ 1/16W J 10kΩ 1/16W J 47kΩ 1/16W J
R1318 R1319 R1321-22 R1401-02 R1403-04 R1405-06 R1451 R1454	NRSA63J-562X NRSA63J-183X NRSA63J-0ROX NRSA63J-102X NRSA63J-331X NRSA63J-102X NRSA63J-821X NRSA63J-472X	MG R MG R MG R MG R MG R MG R MG R	5.6kΩ 1/16W J 18kΩ 1/16W J 0.0Ω 1/16W J 1kΩ 1/16W J 330Ω 1/16W J 1kΩ 1/16W J 820Ω 1/16W J 4.7kΩ 1/16W J	R1606 R1609 R1610 R1618 R1619 R1620 R1637 R1639	NRSA63J-273X NRSA63J-104X NRSA63J-682X NRSA63J-333X NRSA63J-104X NRSA63J-562X QRK126J-2R2X NRSA63J-561X	MG R MG R MG R MG R MG R C R MG R	27kΩ 1/16W J 100kΩ 1/16W J 6.8kΩ 1/16W J 33kΩ 1/16W J 100kΩ 1/16W J 5.6kΩ 1/16W J 2.2Ω 1/2W J 560Ω 1/16W J
R1455-56 R1457 R1458 R1459 R1461 R1462 R1463 R1465-66	NRSA63J-123X NRSA63J-392X NRSA63J-123X NRSA63J-123X NRSA63J-123X NRSA63J-153X NRSA63J-104X NRSA63J-224X	MG R MG R MG R MG R MG R MG R MG R	12kΩ 1/16W J 3.9kΩ 1/16W J 12kΩ 1/16W J 4.7kΩ 1/16W J 12kΩ 1/16W J 15kΩ 1/16W J 15kΩ 1/16W J 100kΩ 1/16W J 220kΩ 1/16W J	R1642-43 R1644 R1645-46 R1649 R1650-51 R1656 R1657 R1658	NRSA63J-681X NRSA63J-104X NRSA63J-0R0X QRK126J-2R2X NRSA63J-103X NRSA63J-683X NRSA63J-683X NRSA63J-683X	MG R MG R MG R C R MG R MG R MG R	680Ω 1/16W J 100kΩ 1/16W J 0.0Ω 1/16W J 2.2Ω 1/2W J 10kΩ 1/16W J 68kΩ 1/16W J 33kΩ 1/16W J 68kΩ 1/16W J
R1467 R1468 R1469 R1470 R1471 R1472 R1473 R1474	NRSA63J-563X NRSA63J-224X NRSA63J-683X NRSA63J-223X NRSA63J-273X NRSA63J-682X NRSA63J-582X NRSA63J-563X	MG R MG R MG R MG R MG R MG R MG R	56kΩ 1/16W J 220kΩ 1/16W J 68kΩ 1/16W J 22kΩ 1/16W J 27kΩ 1/16W J 6.8kΩ 1/16W J 12kΩ 1/16W J 56kΩ 1/16W J	R1659 R1664-65 R1666 R1667 R1668 R1669 R1670-71 R1672	NRSA63J-393X NRSA63J-103X NRSA63J-473X NRSA63J-183X NRSA63J-183X NRSA63J-183X NRSA63J-104X NRSA63J-223X	MG R MG R MG R MG R MG R MG R MG R	39kΩ 1/16W J 10kΩ 1/16W J 47kΩ 1/16W J 18kΩ 1/16W J 47kΩ 1/16W J 47kΩ 1/16W J 10kΩ 1/16W J 22kΩ 1/16W J
R1475 R1476-78 R1479 R1480 R1481 R1482 R1483 R1484	NRSA63J-153X NRSA63J-123X NRSA63J-154X NRSA63J-823X NRSA63J-472X NRSA63J-272X NRSA63J-472X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R	15kΩ 1/16W J 12kΩ 1/16W J 150kΩ 1/16W J 82kΩ 1/16W J 4.7kΩ 1/16W J 2.7kΩ 1/16W J 4.7kΩ 1/16W J 47kΩ 1/16W J 47kΩ 1/16W J	R1673 R1675 R1677-78 R1679 R1680 R1682 R1683 R1684-85	NRSA63J-273X NRSA63J-103X NRSA63J-103X NRSA63J-223X NRSA63J-273X NRSA63J-273X NRSA63J-103X NRSA63J-393X	MG R MG R MG R MG R MG R MG R MG R	27kΩ 1/16W J 10kΩ 1/16W J 10kΩ 1/16W J 22kΩ 1/16W J 27kΩ 1/16W J 27kΩ 1/16W J 10kΩ 1/16W J 39kΩ 1/16W J
R1485 R1486 R1487 R1489 R1491 R1492 R1501 R1504	NRSA63J-123X NRSA63J-472X NRSA63J-183X NRSA63J-333X NRSA63J-562X NRSA63J-562X NRSA63J-0ROX NRSA63J-102X	MG R MG R MG R MG R MG R MG R MG R	12kΩ 1/16W J 4.7kΩ 1/16W J 18kΩ 1/16W J 33kΩ 1/16W J 3.3kΩ 1/16W J 5.6kΩ 1/16W J 0.0Ω 1/16W J 1kΩ 1/16W J	R1686 R1687 R1688 R1689 R1693 R1694 R1695-96 R1701-02	NRSA63J-683X NRSA63J-393X NRSA63J-273X NRSA63J-103X NRSA63J-683X NRSA63J-333X NRSA63J-273X NRSA63J-103X	MG R MG R MG R MG R MG R MG R MG R	68KΩ 1/16W J 39KΩ 1/16W J 27kΩ 1/16W J 10kΩ 1/16W J 68kΩ 1/16W J 33kΩ 1/16W J 27kΩ 1/16W J 10kΩ 1/16W J
R1511 R1512	NRSA63J-152X NRSA63J-332X	MG R MG R	1.5kΩ 1/16W J 3.3kΩ 1/16W J	R1703-04 R1705-08	NRSA63J-102X NRSA63J-103X	MG R MG R	1kΩ 1/16W J 10kΩ 1/16W J

⚠ Symbol No.	Part No.	Part Name	Description
RES 1 R1711-12 R1714-15 R1716-17 R1720-22 R1772-76 R1951	NRSA63J-101X NRSA63J-102X NRSA63J-0ROX NRSA63J-102X NRSA63J-221X QRK126J-220X	MG R MG R MG R MG R MG R C R	100Ω 1/16W J 1kΩ 1/16W J 0.0Ω 1/16W J 1kΩ 1/16W J 220Ω 1/16W J 22Ω 1/2W J
CAPA	ACITOR	<u> </u>	
C1001 C1002 C1004 C1005 C1006 C1007 C1009 C1010	NCB31HK-222X QETN1HM-106Z NCB31CK-104X QETN1CM-108Z NCB31HK-103X QETN1HM-106Z NCB31CK-104X QETN1HM-106Z	CHIP CAP. E CAP. CHIP CAP. E CAP. C CAP. E CAP. C CAP. E CAP. CHIP CAP. E CAP.	2200pF 50V K 10µF 50V M 0.1µF 16V K 1000µF 16V M 0.01µF 50V K 10µF 50V M 0.1µF 16V K 10µF 50V M
C1101	NCB31CK-104X	CHIP CAP. E CAP. CHIP CAP. E CAP. E CAP. CHIP CAP. C CAP. C CAP. C CAP.	0.1µF 16V K
C1102	QETN1HM-106Z		10µF 50V M
C1103	NCB31CK-104X		0.1µF 16V K
C1104	QETN1CM-107Z		100µF 16V M
C1105	QETN1HM-106Z		10µF 50V M
C1106-07	NCB31CK-104X		0.1µF 16V K
C1108	NDC31HJ-680X		68pF 50V J
C1111	NDC31HJ-821X		820pF 50V J
C1112-13	NDC31HJ-470X	C CAP.	47pF 50V J
C1114	NDC31HJ-180X		18pF 50V J
C1115-16	NCB31HK-472X		4700pF 50V K
C1117-18	NCB31HK-103X		0.01µF 50V K
C1119-20	NDC31HJ-2R0X		2.0pF 50V J
C1121	NCB31HK-103X		0.01µF 50V K
C1122-23	NDC31HJ-102X		1000pF 50V J
C1124-25	QETN1HM-106Z		10µF 50V M
C1126	NCB31CK-104X	CHIP CAP. E CAP. CHIP CAP. C CAP. E CAP. C CAP. C CAP. C CAP. E CAP.	0.1µF 16V K
C1127	QETN1HM-106Z		10µF 50V M
C1128	NCB31CK-104X		0.1µF 16V K
C1129	NCF31AZ-105X		1µF 10V Z
C1130	QETN1HM-106Z		10µF 50V M
C1151-54	NCF31AZ-105X		1µF 10V Z
C1155-56	NDC31HJ-102X		1000pF 50V J
C1301	QETN1CM-107Z		100µF 16V M
C1302-03	NCB31CK-104X	CHIP CAP. CHIP CAP. E CAP. CHIP CAP. C CAP. C CAP. CHIP CAP. C CAP. E CAP.	0.1µF 16V K
C1305-09	NCB31CK-104X		0.1µF 16V K
C1310	QETN1AM-228Z		2200µF 10V M
C1311	NCB31CK-683X		0.068µF 16V K
C1312	NDC31HJ-221X		220pF 50V J
C1313-15	NCB31HK-223X		0.022µF 50V K
C1316-18	NCB31HK-103X		0.01µF 50V K
C1320	QETNOJM-228Z		2200µF 6.3V M
C1321-23	NCB31HK-223X	CHIP CAP. C CAP. BP E CAP. CHIP CAP. E CAP. CHIP CAP. C CAP. C CAP. C CAP.	0.022µF 50V K
C1324	NDC31HJ-820X		82pF 50V J
C1351	QENC1EM-106Z		10µF 25V M
C1401	NCB31CK-104X		0.1µF 16V K
C1402	QETN1CM-107Z		100µF 16V M
C1403-04	NCB31CK-104X		0.1µF 16V K
C1453	NCB31HK-103X		0.01µF 50V K
C1454	NCB31EK-333X		0.033µF 25V K
C1455-56 C1457 C1471 C1472 C1473 C1474 C1475 C1491	NCB31CK-104X NCB31EK-333X NCB31CK-104X NCB31HK-103X NCB31CK-104X NCB31EK-333X NCB31CK-104X NCB31EK-473X	CHIP CAP. CHIP CAP. CHIP CAP. C CAP. CHIP CAP. CHIP CAP. CHIP CAP. CHIP CAP. CHIP CAP.	0.1µF 16V K 0.033µF 25V K 0.1µF 16V K 0.01µF 50V K 0.1µF 16V K 0.033µF 25V K 0.1µF 16V K 0.033µF 25V K 0.047µF 25V K
C1501-02	NDC31HJ-150X	C CAP. C CAP. C CAP. E CAP. E CAP. C CAP. E CAP. C CAP. C CAP.	15pF 50V J
C1521	NCB31HK-103X		0.01μF 50V K
C1551-52	NCF31CZ-224X		0.22μF 16V Z
C1553	QETN1EM-476Z		47μF 25V M
C1554-55	NCF31CZ-224X		0.22μF 16V Z
C1560	QETN1CM-107Z		100μF 16V M
C1561	NDC31HJ-361X		560pF 50V J
C1562	QETN1HM-105Z		1μF 50V M

⚠ Symbol No.	Part No.	Part Name	Description
CAPA	ACITOR		
C1564 C1591 C1606-07 C1616 C1618 C1628 C1629 C1630	QFV71HJ-104Z NDC31HJ-471X QETN1CM-227Z QETN1HM-105Z QETN1HM-105Z QETN1HM-107Z QETN1HM-106Z NCF21HZ-224X	MF CAP. C CAP. E CAP. E CAP. E CAP. E CAP. C CAP.	0.1µF 50V J 470pF 50V J 220µF 16V M 1µF 50V M 100µF 50V M 10µF 50V M 0.22µF 50V Z
C1632 C1634 C1641-42 C1646-47 C1648-49 C1657 C1658 C1673-74	NCF21HZ-224X QETM1HM-228 NCF21HZ-224X NCB31HK-103X QETM1VM-108 NCB31HK-103X NDC31HJ-100X NCF31AZ-105X	C CAP. E CAP. C CAP. C CAP. E CAP. C CAP. C CAP. C CAP. C CAP.	0.22µF 50V Z 2200µF 50V M 0.22µF 50V Z 0.01µF 50V K 1000µF 35V M 0.01µF 50V K 10pF 50V J 1µF 10V Z
C1675 C1676-77 C1678-79 C1680 C1681 C1682 C1683 C1684	QETN1EM-476Z NDC31HJ-151X NDC31HJ-150X NCF31AZ-105X NCB31HK-332X NCB31EK-333X QETN1EM-476Z NCB31HK-332X	E CAP. C CAP. C CAP. C CAP. CHIP CAP. CHIP CAP. E CAP. E CAP.	47μF 25V M 150pF 50V J 15pF 50V J 1μF 10V Z 3300pF 50V K 0.033μF 25V K 47μF 25V M 3300pF 50V K
C1685 C1686 C1687 C1688 C1689 C1691 C1692 C1693-94	NCB31EK-333X NCF31AZ-105X QETN1HM-106Z QETN1EM-476Z NCB31CK-104X NCB31EK-393X NDC31HJ-100X QETN1EM-476Z	CHIP CAP. C CAP. E CAP. E CAP. CHIP CAP. CHIP CAP. C CAP. C CAP. E CAP.	0.033µF 25V K 1µF 10V Z 10µF 50V M 47µF 25V M 0.1µF 16V K 0.039µF 25V K 10pF 50V J 47µF 25V M
C1695 C1696 C1697 C1698 C1699 C1701 C1702 C1951	NCF31AZ-105X NCB31EK-393X NCB31HK-103X NCF31AZ-105X NCB31HK-103X QETM1HH-106Z NCB31CK-563X QETM1CM-477Z	C CAP. CHIP CAP. C CAP. C CAP. C CAP. E CAP. E CAP. CHIP CAP.	1μF 10V Z 0.039μF 25V K 0.01μF 50V K 1μF 10V Z 0.01μF 50V K 10μF 50V K 0.056μF 16V K 470μF 16V M
C1952-53 C1954 C1955 C1956	NCB31CK-104X QETN1AM-477Z QETN1AM-227Z QETN1AM-107Z	CHIP CAP. E CAP. E CAP. E CAP.	0.1µF 16V K 470µF 10V M 220µF 10V M 100µF 10V M
COII	_		
L1001 L1002-03 L1004 L1101 L1102 L1111 L1112 L1301-02 L1951	QQL244K-270Z QQL244K-100Z MQL092K-100X QRN143J-0R0X QQL244K-4R7Z QQL244K-220Z QQL244K-180Z MQL092K-1R5X QQL26AM-5R6Z	PEAKING COIL COIL INDUCTOR C R COIL PEAKING COIL COIL CHIP INDUCTOR CHOKE COIL	10μΗ Κ 0.0Ω 1/4W J 4.7μΗ Κ 18μΗ Κ
DIOI D1317-18 D1471-74 D1521 D1591 D1592 D1602 D1610-11 D1614-15	MA111-X MA111-X MA111-X MA111-X MA111-X MA3051/M/-X MA111-X MA111-X MA111-X	SI.DIODE SI.DIODE SI.DIODE SI.DIODE ZENER DIODE SI.DIODE SI.DIODE SI.DIODE	
D1617 D1619-20 D1771-74 D1951 D1981-82	MA111-X MA3330/L/-X MA3056/M/-X 15R35-400A-T5 MA111-X	SI.DIODE ZENER DIODE ZENER DIODE SI.DIODE SI.DIODE	

⚠	Symbol No.	Part No.	Part Name	Description
	TRAN	SISTOR	₹	
	01101-02 01471-72 01561 01562 01601-02 01604-05 01606 01607	2SC2412K/QR/-X 2SC2412K/QR/-X 2SC2412K/QR/-X 2SA1037AK/QR/-X DTC124EKA-X 2SC2412K/QR/-X DTA124EKA-X	SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR DIGI.TRANSISTOR SI.TRANSISTOR DIGI.TRANSISTOR DIGI.TRANSISTOR	
	Q1615 Q1616-17	2SA1037AK/QR/-X DTC323TK-X	SI.TRANSISTOR DIGI.TRANSISTOR	
	IC			
	IC1101 IC1301 IC1402 IC1471 IC1551 IC1601 IC1662 IC1663	MSP3415DQGB3GHX SDA9380 BA10324AF-XE UPC35862-XE LA6515 TA8246AH BA4558F-X NJM2150AM-X	I.C. (MONO-ANA) I C I C I.C. (MONO-ANA) I.C. (MONO-ANA) I.C. (HYBRID) I.C. (MONO-ANA) I.C. (MONO-ANA)	
	IC1665 IC1701 IC1951 IC1952	BA10324AF-XE JLC1562BF-X BA09T BA08T	I C I.C.(DIGI-MOS) I.C.(MONO-ANA) I.C.(MONO-ANA)	
	ОТНЕ	RS		
	J1001 K1001 K1101-02 K1301 K1601-02 LC1102 LC1301-03 TU1001 X1101 X1501	QNN0296-001 NQR0389-003X NQR0389-003X NQR0413-003X CE42681-001Y NQR0431-001X NQR0431-001X QAU0188-003 CE42546-001Z QAX0549-001Z	PIN JACK FERRITE BEADS FERRITE BEADS CHIP BEADS BEADS CORE EMI FILTER EMI FILTER TUNER  CRYSTAL CRYSTAL	

# ■ POWER & DEF. P.W. BOARD ASS'Y (SMF-2003A-U2)

Δ	Symbol No.	Part No.	Part Name	Description
	RESI	STOR		
	R2401-02 R2403 R2404 R2405 R2406 R2407-08 R2409 R2410	QRE141J-562Y QRE141J-222Y QRX01GJ-1R0 QRL029J-151 QRE141J-222Y QRX01GJ-1R5 QRE141J-823Y QRE141J-103Y	C R C R MF R OM R C R MF R C R	5.6kΩ 1/4W J 2.2kΩ 1/4W J 1.0Ω 1W J 150Ω 2W J 2.2kΩ 1/4W J 1.5Ω 1W J 82kΩ 1/4W J 10kΩ 1/4W J
	R2421 R2422 R2461 R2462 R2463 R2464 R2468 R2469	QRE141J-103Y QRE141J-274Y QRG029J-820 QRE141J-473Y QRA14CF-9101Y QRX01GJ-2R7 QRE141J-102Y QRE141J-272Y	C R C R OM R C R MF R MF R C R	10kΩ 1/4W J 270kΩ 1/4W J 82 Ω 2W J 47kΩ 1/4W J 9.1kΩ 1/4W F 2.7Ω 1W J 1kΩ 1/4W J 2.7kΩ 1/4W J
	R2471 R2472 R2473 R2474 R2475-76 R2477 R2478 R2501	QRE141J-391Y QRA14CF-1002Y QRE141J-473Y QRE141J-103Y QRE141J-102Y QRE141J-563Y QRE141J-333Y QRE141J-471Y	C R MF R C R C R C R C R C R	390Ω 1/4W J 10kΩ 1/4W F 47kΩ 1/4W J 10kΩ 1/4W J 1kΩ 1/4W J 56kΩ 1/4W J 33kΩ 1/4W J 470Ω 1/4W J
	R2502 R2503 R2504 R2505 R2506 R2521 R2522 R2523	QRE141J-123Y QRE121J-152Y QRL039J-272 QRL039J-332 QRE121J-5R6Y QRE121J-471Y QRE141J-223Y QRE141J-103Y	OM R C R C R C R C R	12kΩ 1/4W J 1.5kΩ 1/2W J 2.7kΩ 3W J 3.3kΩ 3W J 5.6Ω 1/2W J 470Ω 1/2W J 22kΩ 1/4W J 10kΩ 1/4W J
	R2524 R2541 R2542 R2543 R2551 R2552 R2561 R2562	QRC121K-152Z QRE141J-182Y QRE141J-222Y QRE121J-272Y QR29022-R47 QR29022-R47 QRG01GJ-220 QRE121J-123Y	COMP.R C R C R F R OM R C R	1.5k\(\Omega\) 1/2\(\mathbf{W}\) K 1.8k\(\Omega\) 1/4\(\mathbf{W}\) J 2.2k\(\Omega\) 1/4\(\mathbf{W}\) J 2.7k\(\Omega\) 1/2\(\mathbf{W}\) J 0.47\(\Omega\) 1\(\mathbf{W}\) K 22\(\Omega\) 1\(\mathbf{W}\) J 12k\(\Omega\) 1/2\(\mathbf{W}\) J
	R2563 R2581 R2582 R2583 R2584 R2585 R2586 R2587	QRZ0056-103Z QRF154K-4R7 QRE141J-681Y QRE121J-682Y QRE141J-183Y QRE141J-222Y QRA14CF-6801Y QRA14CF-2101Y	COMP.R UNF R C R C R C R C R MF R	10kΩ 4.7Ω 15W K 680Ω 1/4W J 6.8kΩ 1/2W J 18kΩ 1/4W J 2.2kΩ 1/4W J 6.8kΩ 1/4W F 2.1kΩ 1/4W F
Δ	R2588 R2591 R2901 R2902 R2903 R2904 R2905-06 R2908-09	QRE141J-103Y QRZ9017-4R7 QRE121J-331Y QRF054K-3R3 QRF104K-3R9 QRL039J-683 QRE121J-474Y QRL039J-823	C R F R C R UNF R UNF R OM R C R	10kΩ 1/4W J 4.7 Ω 1/4W J 330Ω 1/2W J 3.3Ω 5W K 3.9Ω 10W K 68kΩ 3W J 470kΩ 1/2W J 82kΩ 3W J
	R2910 R2911 R2914 R2915 R2916 R2932 R2933 R2934	QRZ9017-4R7 QRE121J-152Y QRM059J-R10 QRE121J-681Y QRE121J-332Y QRZ9017-470 QRE121J-272Y QRE121J-564Y	F R C R MP R C R C R C R C R	4.7 Ω 1/4W J 1.5kΩ 1/2W J 0.10Ω 5W J 680Ω 1/2W J 3.3kΩ 1/2W J 47 Ω 1/4W J 2.7kΩ 1/2W J 560kΩ 1/2W J
	R2935 R2936 R2937 R2941 R2942 R2943-44	QRE141J-472Y QRX01GJ-3R9 QRE121J-681Y QRE121J-331Y QRE121J-471Y QRE141J-103Y	C R MF R C R C R C R	4.7kΩ 1/4W J 3.9Ω 1W J 680Ω 1/2W J 330Ω 1/2W J 470Ω 1/2W J 10kΩ 1/4W J

⚠	Symbol No.	Part No.	Part Name	Description
	RESI	STOR		
	R2945 R2946 R2949 R2950 R2951 R2952 R2953 R2954	QRE141J-563Y QRE141J-103Y QRE141J-101Y QRE141J-103Y QRE121J-102Y QR1039J-223 QRE141J-474Y QRE141J-103Y	C R C R C R C R C R OM R C R C R	56kΩ 1/4W J 10kΩ 1/4W J 100Ω 1/4W J 10kΩ 1/4W J 1kΩ 1/2W J 22kΩ 3W J 470kΩ 1/4W J 10kΩ 1/4W J
Δ	R2959 R2960 R2963 R2981 R2982 R2991	QRT039J-R68 QRE141J-103Y QRL039J-561 QRE141J-153Y QRE141J-102Y QRZ0057-825	MF R C R OM R C R C R C R	$\begin{array}{ccccc} 0.68\Omega & 3\text{W} & \text{J} \\ 10\text{K}\Omega & 1/4\text{W} & \text{J} \\ 560\Omega & 3\text{W} & \text{J} \\ 15\text{K}\Omega & 1/4\text{W} & \text{J} \\ 1\text{K}\Omega & 1/4\text{W} & \text{J} \\ 8.2\text{M}\Omega & 1\text{W} & \text{J} \end{array}$
	CAPA	CITOR		
	C2403 C2404 C2405 C2406 C2408 C2409-10 C2411 C2414	QFLC2AJ-104Z QCZ0120-104Z QDC31HJ-82OZ QETM1VM-108 QETM1VM-337Z QFV71HJ-474Z QFLC2AJ-104Z QCB31HK-682Z	M CAP. C CAP. C CAP. E CAP. E CAP. MF CAP. M CAP. C CAP.	0.1µF 100V J 0.1µF 25V Z 82pF 50V J 1000µF 35V M 330µF 35V M 0.47µF 50V J 0.1µF 100V J 6800pF 50V K
	C2421 C2461 C2462-63 C2464 C2465 C2466 C2467 C2468	QETN1HM-105Z QEZ0472-106Z QFMZ2DJ-152Z QCZ0120-104Z QETN1HM-106Z QFP31HJ-272Z QFLC1HJ-102Z QETN1EM-476Z	E CAP. E CAP. M CAP. C CAP. E CAP. PP CAP. M CAP. E CAP.	1μF 50V M 10μF 250V M 1500pF 200V J 0.1μF 25V Z 10μF 50V M 2700pF 50V J 1000pF 50V J 47μF 25V M
Δ	C2470 C2471 C2501 C2502 C2503 C2521 C2522 C2523	QCS31HJ-470Z QFLC1HJ-103Z QCB32HK-331Z QFM72DK-103 QFV71HJ-224Z QFZ0122-112 QFZ0200-113 QFM72DK-393	C CAP. M CAP. C CAP. M CAP. MF CAP. MPP CAP. MPP CAP. M CAP.	47pF 50V J 0.01μF 50V J 330pF 500V K 0.01μF 200V K 0.02μF 50V J 1100pF1.8kVH±3% 0.011μF1.5kVH±3% 0.039μF 200V K
Δ	C2524 C2525 C2526 C2527 C2528 C2529 C2530 C2531	QFP32JJ-223 QFZ0194-914 QFZ0197-114 QFZ0194-154 QFZ0197-114 QFZ0194-154 QCB32HK-561Z QFZ0194-534	PP CAP. MPP CAP. MPP CAP. MPP CAP. MPP CAP. MPP CAP. C CAP. MPP CAP.	0.022µF 630V J 0.91µF 250V J 0.11µF 250V J 0.15µF 250V J 0.11µF 250V J 0.15µF 250V J 560pF 500V K 0.53µF 250V J
	C2532 C2541 C2551 C2552 C2553 C2554 C2555 C2556	QETM2CM-227 QENC1HM-1057 QCB32HK-1527 QETN1CM-1087 QCB32HK-1527 QETN1CM-1087 QCB32HK-1027 QETN2EM-106Z	E CAP. BP E CAP. C CAP. E CAP. C CAP. C CAP. C CAP. E CAP. E CAP. E CAP. E CAP.	220µF 160V M 1µF 50V M 1500pF 500V K 1000µF 16V M 1500pF 500V K 1000µF 16V M 1000pF 500V K 100µF 250V M
Δ	C2558 C2559 C2561 C2581 C2582 C2583 C2584 C2901	QETN1CM-477Z QEHR1CM-227Z QFLC2AJ-223Z QETN1CM-107Z QETN1EM-476Z QETN2AM-106Z QETN1AM-227Z QFZ9075-473	E CAP. E CAP. M CAP. E CAP. E CAP. E CAP. E CAP. E CAP. MPP CAP.	470μF 16V M 220μF 16V M 0.022μF 100V J 100μF 16V M 47μF 25V M 10μF 100V M 220μF 10V M 0.047μFAC275V M
	C2902 C2903 C2904-06 C2907 C2908 C2909 C2910 C2911	QFZ9075-104 QFZ9075-473 QCZ9054-472 QEZ0199-227 QCB32HK-103 QCZ0340-391 QETM1HM-476Z QCB31HK-122Z	MPP CAP. MPP CAP. C CAP. E CAP. C CAP. C CAP. C CAP. C CAP.	0.1µFAC275V M 0.047µFAC275V M 4700pFAC250V Z 220µF 400V M 0.01µF 500V K 390pF 22V K 47µF 50V M 1200pF 50V K

⚠	Symbol No.	Part No.	Part Name	Description
	CAPA	CITOR		
<u>A</u>	C2912 C2914 C2916 C2931 C2932 C2933 C2934 C2936	QCZ0340-561 QCB31HK-471Z QCB32HK-152Z QCZ9054-472 QCZ9054-472 QCZ9054-472 QETM2GM-226 QCZ0340-151	C CAP.	560pF 2kV K 470pF 50V K 1500pF 500V K 4700pFAC250V Z 4700pFAC250V Z 4700pFAC250V Z 22µF 400V M 150pF 2kV K
	C2937 C2938 C2939 C2940 C2941 C2942 C2951 C2952	QETN1HM-475Z QCB31HK-222Z QFLC1HJ-103Z QCB31HK-471Z QETN1AM-108Z QFLC1HJ-102Z QEZ0203-227 QTMM1EM-228	E CAP. C CAP. M CAP. C CAP. E CAP. M CAP. E CAP. E CAP. E CAP. E CAP.	4.7µF 50V M 2200pF 50V K 0.01µF 50V J 470pF 50V K 1000µF 10V M 1000pF 50V J 220µF 160V M 2200µF 25V M
	C2954 C2959 C2960 C2963 C2972 C2974-75 C2976 C2978-79	QETM1VM-228 QFV71HJ-684Z QCZ0131-821 QCB32HK-152Z QETM1CM-108Z QEZ0256-128 QETN1CM-108Z QEZ0256-128	E CAP. MF CAP. C CAP. C CAP. E CAP. E CAP. E CAP. E CAP. E CAP.	2200µF 35V M 0.68µF 50V J 820pF 2kV K 1500pF 500V K 1000µF 16V M 1200µF 10V M 1200µF 16V M
<u>^</u>	C2991 C2993	QCZ9079-222 QCZ9079-471	C CAP.	2200pFAC250V M 470pFAC250V K
_	TRAN	SFORME	R	
<u>^</u>	T2501 T2521 T2551 T2561 T2901 T2931	QQR1111-001 QQR1188-001 QQH0091-003-I2 QQR1096-001 QQS0102-001 QQS0101-001	DRIVE TRANSF. PIN TRANSF. FBT DEF.TRANSF. SW TRANSF. SW TRANSF.	(SERVICE)With ANODE WIRE
	COIL			
	L2461 L2462 L2521 L2522 L2551 L2552 L2561 L2901-02	QQLZ030-801 QQLZ028-272 QQLZ031-180 QQR1191-001 QQLZ026-260 QQLZ026-202 QQLZ028-272 QQLZ028-272 QQL401K-100Z	INDUCTOR CHOKE COIL CHOKE COIL LINEARITY COIL HEATER CHOKE COIL CHOKE COIL CHOKE COIL	22µН К
	L2903 L2951 L2954-55 L2957-58 L2959-60	QQR1200-001 QQL2026-460 QQR1129-001 QQL2026-460 QQL26AK-220Z	CHOKE COIL HEATER CHOKE CHOKE COIL HEATER CHOKE COIL	22µН К
	DIOD	E		
	D2402 D2421 D2461 D2462-63 D2501 D2521 D2522	15R35-400A-T2 155133-T2 EU2-T3 155133-T2 15581-T5 V11CA-C1 FMV-3FU-F1	SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE	
Δ	D2523 D2541 D2542 D2551-52 D2553 D2582 D2583 D2584	MTZJ228-T2 EU2-T3 MTZJ3.9B-T2 EU2-T3 RH15-T3 MTZJ7.5B-T2 MTZJ7.5S-T2 EU2-T3	ZENER DIODE SI.DIODE ZENER DIODE SI.DIODE SI.DIODE ZENER DIODE ZENER DIODE ZENER DIODE SI.DIODE	
	D2901 D2902 D2904-05 D2906 D2907-08 D2910 D2912	D3SB60 RG1C-LFA1 AU01Z-T2 MTZJ27B-T2 1S5133-T2 MTZJ15B-T2 MTZJ27B-T2	BRIDGE DIODE SI.DIODE SI.DIODE ZENER DIODE SI.DIODE ZENER DIODE ZENER DIODE ZENER DIODE	

⚠	Symbol No.	Part No.	Part Name	Description
	DIOD	E		
Δ	D2931 D2933-34 D2935 D2941 D2943 D2944 D2945 D2951	S1WB/A/60-4101 AU01Z-T2 1SS133-T2 RGP10J-5025-T3 MTZJ7.5B-T2 NJM431L-T 1SS133-T2 RU4B-F1	SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE ZENER DIODE I.C. (MONO-ANA) SI.DIODE SI.DIODE	
	D2952 D2953 D2954 D2958 D2959-60 D2961 D2981 D2984-85	FMX-G12S RU4B-F1 FMX-G12S MTZJ33B-T2 RK34-LFC4 1SR35-400A-T2 1SS133-T2 1SS133-T2	SI.DIODE SI.DIODE SI.DIODE SI.DIODE ZENER DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE SI.DIODE	
_	TRAN	SISTOR	₹	
Δ	Q2421 Q2422 Q2461 Q2462-63 Q2464 Q2501 Q2521 Q2581	DTC124ESA-T 2SC1740S/QR/-T 2SK2459N-F54 2SC1740S/QR/-T 2SA933AS/QR/-T BSN304-T 2SC5552-RL 2SA1208/ST/Z1-T	DIGI.TRANSISTOR SI.TRANSISTOR F.E.T. SI.TRANSISTOR SI.TRANSISTOR F.E.T. SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR	H.OUT
	Q2582 Q2583 Q2941-42	DTC144ESA-T 2SC1740S/QR/-T 2SC1740S/QR/-T	DIGI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR	
_	IC			
	IC2401 IC2461 IC2551 IC2901 IC2931 IC2951 IC2954 IC2955	LA78041 BA10393 BA12T STR-F6667B/F7 STR-L472/F7 SE140N SI-8050S SI-8033S/F1	I C I.C. (MONO-ANA) I.C. (MONO-ANA) I.C. (HYBRID) I C I.C. (HYBRID) I.C. (HYBRID) I.C. (HYBRID)	
	ОТНЕ	RS		
<u>^</u>	CP2931 CP2941 CP2954 K2401 K2522-24 K2901 K2952-54 LF2901	QMFZ043-2R0Z-J1 ICP-N25-Y ICP-N75-Y QQR0621-002Z CE41832-001 QQR0679-001 QQR0679-002Z QQR1095-001	FUSE I.C.PROTECT I.C.PROTECT BEADS CORE LEAD CORE FERRITE BEADS BEADS CORE LINE FILTER	2A
<u>^</u>	PC2901 PC2931 RY2931 TH2901	PC123FY2 PC123FY2 QSK0099-001 QAD0133-9R0	I.C.(PH.COUPLER) I.C.(PH.COUPLER) RELAY PTC	

## ■ CRT SOCKET P.W. BOARD ASS'Y (SMF-3002A-U2)

⚠	(SMF-: Symbol No.	3002A-U2) Part No.	Part Name	Description
_		ISTOR		<u> </u>
	R3101 R3102 R3103 R3104 R3105 R3106 R3107 R3109	NRSA63J-123X NRSA63J-681X NRSA63J-101X NRSA63J-472X NRSA63J-102X NRSA63J-221X NRSA63J-561X NRSA63J-153X	MG R MG R MG R MG R MG R MG R MG R	12kΩ 1/16W J 680Ω 1/16W J 100Ω 1/16W J 4.7kΩ 1/16W J 1kΩ 1/16W J 220Ω 1/16W J 560Ω 1/16W J 15kΩ 1/16W J
	R3110 R3111 R3112 R3113-14 R3115 R3116 R3117 R3122	NRSA63J-222X NRSA63J-471X NRSA63J-272X NRSA63J-152X NRSA63J-390X QRG016J-101 NRSA63J-331X NRSA63J-122X	MG R MG R MG R MG R MG R OM R MG R	$\begin{array}{ccccc} 2.2 k\Omega & 1/16 W & J \\ 470\Omega & 1/16 W & J \\ 2.7 k\Omega & 1/16 W & J \\ 1.5 k\Omega & 1/16 W & J \\ 39\Omega & 1/16 W & J \\ 100\Omega & 1 W & J \\ 330\Omega & 1/16 W & J \\ 1.2 k\Omega & 1/16 W & J \\ \end{array}$
	R3123 R3124 R3125 R3126 R3127 R3128 R3129-30 R3131	ORE121J-563Y NRSA63J-470X ORE121J-563Y NRSA63J-470X NRSA63J-122X NRSA63J-122X NRSA63J-390X ORE121J-2R7Y NRSA63J-390X	C R MG R C R MG R MG R C R MG R	56kΩ 1/2W J 47Ω 1/16W J 56kΩ 1/2W J 47Ω 1/16W J 1.2kΩ 1/16W J 39Ω 1/16W J 2.7Ω 1/2W J 39Ω 1/16W J
Δ	R3132 R3133 R3134 R3204-06 R3211 R3223-25 R3227 R3228	NRSA63J-121X QRL029J-681 QRZ902I-561 NRSA63J-272X NRSA63J-154X NRSA63J-103X NRSA63J-103X NRSA63J-272X	MG R OM R F R MG R MG R MG R MG R	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	R3229-31 R3232-34 R3235-37 R3239 R3241 R3242 R3244 R3245-47	ORLO29J-104 NRSA63J-332X ORC121K-152Z ORZ0107-474Z QRZ0107-105Z NRSA63J-103X NRSA63J-102X NRSA63J-562X	OM R MG R COMP.R C R C R MG R MG R	100kΩ 2W J 3.3kΩ 1/16W J 1.5kΩ 1/2W K 470kΩ 1/2W K 1.0MΩ 1/2W K 10kΩ 1/16W J 1kΩ 1/16W J 5.6kΩ 1/16W J
	R3301-02 R3303-04 R3305 R3306 R3310	QRE121J-474Y NRSA63J-223X NRSA63J-562X NRSA63J-392X NRSA63J-0R0X	C R MG R MG R MG R MG R	470kΩ 1/2W J 22kΩ 1/16W J 5.6kΩ 1/16W J 3.9kΩ 1/16W J 0.0Ω 1/16W J
		ACITOR		
	C3102 C3103 C3104 C3106 C3107 C3110 C3111 C3113	NDC31HJ-6ROX NDC31HJ-390X QCB31HK-103Z QETN1HM-335Z QETN1CM-107Z QETN2CM-106Z QCB32HK-472Z QETN2CM-106Z	C CAP. C CAP. C CAP. E CAP. E CAP. E CAP. C CAP. E CAP.	6pF 50V J 39pF 50V J 0.01µF 50V K 3.3µF 50V M 100µF 16V M 10µF 160V M 4700pF 500V K 10µF 160V M
	C3114 C3116-17 C3118 C3120-21 C3201-03 C3204-06 C3207-09 C3210-12	QCB32HK-472Z QETN1AM-107Z QETN1AM-337Z NDC31HJ-221X NDC31HJ-100X NCF31CZ-104X QETN1EM-476Z QFK62EK-104Z	C CAP. E CAP. E CAP. C CAP. C CAP. C CAP. E CAP. MM CAP.	4700pF 500V K 100µF 10V M 330µF 10V M 220pF 50V J 10pF 50V J 0.1µF 16V Z 47µF 25V M 0.1µF 25V K
	C3213-15 C3216 C3218 C3219 C3221 C3302	NDC31HJ-181X QETN1CM-107Z QETM2EM-336 QFZ0097-223 QETN2EM-106Z QETN1AM-477Z	C CAP. E CAP. E CAP. MM CAP. E CAP. E CAP.	180pF 50V J 100µF 16V M 33µF 250V M 0.022µF 1250V K 10µF 250V M 470µF 10V M

⚠	Symbol No.	Part No.	Part Name	Description
	COIL			
	L3101 L3204	QQL244K-5R6Z QQL26AJ-102Z	COIL	5.6μH K 1mH J
	DIOD	E		_
	D3101-02 D3103-04 D3204-06 D3208-10 D3211 D3301 D3303	MA111-X RH15-T3 EU01N-T2 1SR124-400A-T2 MA3062/M/-X MA111-X MA111-X	SI.DIODE SI.DIODE SI.DIODE SI.DIODE ZEWER DIODE SI.DIODE SI.DIODE SI.DIODE	
	TRAN	SISTOF	₹	
	Q3101 Q3102 Q3103 Q3104 Q3105 Q3108 Q3109 Q3301	2SC2412K/QR/-X 2SA1037AK/QR/-X 2SC1906-T 2SC2412K/QR/-X 2SC1627A/OY/-T 2SA1837 2SC4793 2SA1037AK/QR/-X	SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR	
	IC			
	IC3201-03	TDA6111Q	I.C.(MONO-ANA)	
	ОТНЕ	RS		
Δ	K3101 K3103-04 K3105 SK3001	CE41492-001Z CE41492-001Z QQR0621-002Z QNZ0380-001	CHOKE COIL CHOKE COIL BEADS CORE C.R.T.SOCKET	

# ■ FRONT CONTROL P.W. BOARD ASS'Y (SMF-8002A-U2)

	(Olvii -O	UUZA-UZ)		
Δ	Symbol No.	Part No.	Part Name	Description
	RESI	STOR		
	R8003 R8004 R8005 R8006 R8008 R8020 R8035 R8039	NRSA63J-102X NRSA63J-222X NRSA63J-122X NRSA63J-182X NRSA63J-102X NRSA63J-822X QRE121J-151Y NRSA63J-331X	MG R MG R MG R MG R MG R C R MG R	1kΩ 1/16W J 2.2kΩ 1/16W J 220Ω 1/16W J 1.8kΩ 1/16W J 1.kΩ 1/16W J 1.kΩ 1/16W J 8.2kΩ 1/16W J 150Ω 1/2W J 330Ω 1/16W J
	CAPA	CITOR		
⚠	C8003 C8004 C8019 C8022 C8901	QETN1HM-106Z NCB31CK-104X QETN1CM-107Z QETN1EM-476Z QFZ9040-474	E CAP. CHIP CAP. E CAP. E CAP. MF CAP.	10µF 50V M 0.1µF 16V K 100µF 16V M 47µF 25V M 0.47µFAC275V M
_	DIOD	ÞΕ		
	D8007 D8008 D8010 D8011 D8014 D8018	P1241-04 MA111-X SPR-39MVWF MA111-X MA3068/M/-X MA3033-X	C.D.S. SI.DIODE L.E.D. SI.DIODE ZENER DIODE ZENER DIODE	
	TRAN	SISTOR	₹	
	Q8001 Q8002 Q8003-04	2SA1037AK/QR/-X DTC124EKA-X DTA124EKA-X	SI.TRANSISTOR DIGI.TRANSISTOR DIGI.TRANSISTOR	
	<b>I C</b> IC8001	GP1U281Q	IFR DETECT UNIT	
	ОТНЕ	RS		
<u>^</u>	F8901	CM35921-005-H LC30349-001A-H CEMG002-001Z QMF51D2-3R15J1	CDS HOLDER L.E.D.HOLDER FUSE CLIP FUSE	(×2)
<u>A</u>	LF8901 S8901	QQR1095-001 QSW0824-001	LINE FILTER PUSH SWITCH	MAIN POWER

# ■ SIDE CONTROL P.W. BOARD ASS'Y (SMF-8102A-U2)

⚠ Symbol No.	Part No.	Part Name	Description
RES	ISTOR		
R8001-02 R8010 R8012-13 R8021-22	QRE121J-271Y NRSA63J-103X NRSA63J-103X NRSA63J-102X	C R MG R MG R MG R	270Ω 1/2W J 10kΩ 1/16W J 10kΩ 1/16W J 1kΩ 1/16W J
CAPA	ACITOR	<u> </u>	
C8001-02 C8003 C8010-11 C8021	NCB31HK-103X NDC31HJ-680X NCB31HK-472X NCB31CK-104X	C CAP. C CAP. C CAP. CHIP CAP.	0.01μF 50V K 68pF 50V J 4700pF 50V K 0.1μF 16V K
COII	_		
L8001 L8002-03 L8010-11 L8012	QQR0716-001Z QQL244K-5R6Z QQL244K-270Z QQR0716-001Z	LEAD CORE COIL PEAKING COIL LEAD CORE	5.6µН К
ОТН	ERS		
J8001 J8003 LC8002 S8001 S8002 S8003	QNS0169-001 QNZ0438-001 NQR0169-001X QSW0619-003Z QSW0619-003Z QSW0619-003Z	PIN JACK JACK EMI FILTER PUSH SWITCH PUSH SWITCH PUSH SWITCH	MENU CH DOWN CH UP

#### ■MICON P.W. BOARD ASS'Y (SMF0M001A-U2)

Symbol No.	Part No.	Part Name	Description
RES	ISTOR		
R0001 R0002 R0003-05 R0006 R0007-08 R0009-11 R0012 R0013	NRSA63J-102X NRSA63J-104X NRSA63J-102X NRSA63J-152X NRSA63J-102X NRSA63J-103X NRSA63J-273X NRSA63J-221X	MG R MG R MG R MG R MG R MG R MG R	1kΩ 1/16W J 100kΩ 1/16W J 1kΩ 1/16W J 1.5kΩ 1/16W J 1.5kΩ 1/16W J 1kΩ 1/16W J 10kΩ 1/16W J 27kΩ 1/16W J 220Ω 1/16W J
R0014 R0015 R0016-17 R0018-21 R0022 R0024 R0027 R0030	NRSA63J-102X NRSA63J-473X NRSA63J-103X NRSA63J-102X NRSA63J-472X NRSA63J-472X NRSA63J-472X NRSA63J-472X	MG R MG R MG R MG R MG R MG R MG R	1kΩ 1/16W J 47kΩ 1/16W J 10kΩ 1/16W J 1κΩ 1/16W J 4.7kΩ 1/16W J
R0032 R0034-53 R0055-77 R0087 R0089-91 R0092 R0093 R0094	NRSA63J-472X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-221X NRSA63J-221X NRSA63J-472X NRSA63J-221X NRSA63J-472X	MG R MG R MG R MG R MG R MG R MG R	4.7kΩ 1/16W J 0.0Ω 1/16W J 0.0Ω 1/16W J 220Ω 1/16W J 220Ω 1/16W J 4.7kΩ 1/16W J 4.7kΩ 1/16W J 4.7kΩ 1/16W J
R0095 R0096 R0097 R0098 R0099 R0100-02 R0103-06 R0107	NRSA63J-473X NRSA63J-221X NRSA63J-102X NRSA63J-0R0X NRSA63J-102X NRSA63J-102X NRSA63J-103X NRSA63J-102X	MG R MG R MG R MG R MG R MG R MG R	47kΩ 1/16W J 220Ω 1/16W J 1kΩ 1/16W J 0.0Ω 1/16W J 1kΩ 1/16W J 1kΩ 1/16W J 10kΩ 1/16W J 1kΩ 1/16W J 1kΩ 1/16W J
R0110 R0111 R0112 R0113-14 R0119 R0120 R0121 R0122	NRSA63J-102X NRSA63J-103X NRSA63J-102X NRSA63J-103X NRSA63J-563X NRSA63J-332X NRSA63J-322X NRSA63J-182X NRSA63J-103X	MG R MG R MG R MG R MG R MG R MG R	1kΩ 1/16W J 10kΩ 1/16W J 1kΩ 1/16W J 10kΩ 1/16W J 56kΩ 1/16W J 3.3kΩ 1/16W J 1.8kΩ 1/16W J 10kΩ 1/16W J
R0123 R0124 R0125-28 R0129 R0130 R0131 R0133 R0135	NRSA63J-682X NRSA63J-101X NRSA63J-472X NRSA63J-823X NRSA63J-104X NRSA63J-0ROX NRSA63J-0ROX NRSA63J-102X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{cccc} 6.8 k\Omega & 1/16 W & J \\ 100\Omega & 1/16 W & J \\ 4.7 k\Omega & 1/16 W & J \\ 82 k\Omega & 1/16 W & J \\ 100 k\Omega & 1/16 W & J \\ 0.0\Omega & 1/16 W & J \\ 0.0\Omega & 1/16 W & J \\ 1k\Omega & 1/16 W & J \\ \end{array}$
R0136 R0137-39 R0144 R0147 R0151 R0152-54 R0155-56 R0157	NRSA63J-103X NRSA63J-222X NRSA63J-103X NRSA63J-472X NRSA63J-183X NRSA63J-221X NRSA63J-101X NRSA63J-0R0X	MG R MG R MG R MG R MG R MG R MG R	10kΩ 1/16W J 2.2kΩ 1/16W J 10kΩ 1/16W J 4.7kΩ 1/16W J 18kΩ 1/16W J 220Ω 1/16W J 100Ω 1/16W J 0.0Ω 1/16W J
R0158 R0161 R0162 R0163	NRSA63J-221X NRSA63J-102X NRSA63J-153X NRSA63J-682X	MG R MG R MG R MG R	220Ω 1/16W J 1kΩ 1/16W J 15kΩ 1/16W J 6.8kΩ 1/16W J
CAPA	ACITOR		
C0001 C0002 C0003 C0004 C0005-06 C0007 C0008 C0012-13 C0014 C0017	QETNOJM-477Z NCF31CZ-104X NCB11CK-225X QETNOJM-108Z NCB11CK-225X NEH71CM-476X NCB11CK-225X NCF31CZ-104X NCB31HK-682Z NDS31HK-550X	E CAP. C CAP. C HIP CAP. E CAP. CHIP CAP. E CAP. CHIP CAP. C CAP. C CAP. C CAP. C CAP. C CAP.	470µF 6.3V M 0.1µF 16V Z 2.2µF 16V K 1000µF 6.3V M 2.2µF 16V K 47µF 16V M 2.2µF 16V K 0.1µF 16V Z 6800pF 50V K 15pF 50V J

<u>∧</u> Symbol No.	Part No.	Part Name	Description
	ACITOR		· · · · · · · · · · · · · · · · · · ·
C0019 C0020 C0021 C0022 C0023 C0024 C0027-28 C0029	NEH71CM-476X NCF31CZ-104X NEH71CM-476X NCF31AZ-105X NCB31EK-333X NCF31CZ-104X NEH71CM-476X NDC31HJ-151X	E CAP. C CAP. E CAP. C CAP. CHIP CAP. C CAP. E CAP. C CAP.	$\begin{array}{ccccc} 47\mu F & 16V & M \\ 0.1\mu F & 16V & Z \\ 47\mu F & 16V & M \\ 1\mu F & 10V & Z \\ 0.033\mu F & 25V & K \\ 0.1\mu F & 16V & Z \\ 47\mu F & 16V & M \\ 150\rho F & 50V & J \\ \end{array}$
C0030-32 C0034-39 C0040-41 C0042-43 C0045-47 C0048 C0049-50 C0051	NCF31CZ-104X NCF31CZ-104X NDC31HJ-330X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X	C CAP. E CAP.	$\begin{array}{cccc} 0.1\mu F & 16V & Z \\ 0.1\mu F & 16V & Z \\ 33p F & 50V & J \\ 0.1\mu F & 16V & Z \\ 0.1\mu F & 16V & Z \\ 47\mu F & 16V & M \\ 0.1\mu F & 16V & M \\ 47\mu F & 16V & M \\ \end{array}$
C0052-57 C0059-61 C0062 C0063-65 C0070	NCF31CZ-104X NEH71CM-106X NCF31CZ-104X NDC31HJ-820X NEH71HM-225X	C CAP. E CAP. C CAP. C CAP. E CAP.	$\begin{array}{cccc} 0.1\mu F & 16V & Z \\ 10\mu F & 16V & M \\ 0.1\mu F & 16V & Z \\ 82\rho F & 50V & J \\ 2.2\mu F & 50V & M \\ \end{array}$
COII	_		
L0001 L0003 L0005-08 L0009 L0010-14 L0015-16 L0017-22	NQL092K-4R7X NQL092K-4R7X NQL092K-4R7X NQL093K-4R7X NQL092K-4R7X NQL092K-4R7X NQL092K-1R5X	CHIP INDUCTOR	
DIO	DE		
D0001-02 D0003 D0004 D0005-08 D0010	MA111-X MA3068/M/-X MA3027-X MA3056/M/-X MA3068/M/-X	SI.DIODE ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE	
TRAI	<b>NSISTO</b>	R	
Q0001-02 Q0007-08 Q0009-12	2SC2712/YG/-X 2SA1162/YG/-X 2SC2712/YG/-X	SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR	
IC			
IC0001 IC0003 IC0004 IC0005 IC0012 IC0901 IC0902 IC0903	SDA6000 K45161622D-TC80 AT24C32-2812EU S-80828ANNP-W MX2311610TC1001 TA48M025F-X TA48M033F-X MM1437AF-X	I C I.C. (D-RAM) I.C. I C I C I.C. (M) I.C. (M) I.C. (MONO-ANA)	(SERVICE)
ОТНЕ	ERS		
CN0001 K0001 K0002 K0003 K0004 K0005 LC0001 LC0002	QGB1505K1-50 NQR0360-002X NQR0389-003X NRSA631-0R0X NQR0389-003X NRSA631-0R0X NQR0313-007X NQR0431-001X	CONNECTOR FERRITE BEADS FERRITE BEADS MG R FERRITE BEADS MG R EMI FILTER EMI FILTER	0.0Ω 1/16W J 0.0Ω 1/16W J
X0001	QAX0669-001Z	XTAL	

#### ■ AV SW P.W. BOARD ASS'Y (SMF0S002A-U2)

∆ Symbol No.	Part No.	Part Name	Description
	ISTOR		
R0101-09 R0110-11 R0112-13 R0114 R0115 R0116 R0117 R0118	NRSA63J-750X NRSA63J-103X NRSA63J-823X NRSA63J-333X NRSA63J-473X NRSA63J-823X NRSA63J-223X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R	75Ω 1/16W J 10KΩ 1/16W J 82kΩ 1/16W J 33kΩ 1/16W J 47kΩ 1/16W J 82kΩ 1/16W J 22kΩ 1/16W J 47kΩ 1/16W J
R0119 R0120 R0121 R0122 R0123 R0124 R0125 R0126	NRSA63J-153X NRSA63J-273X NRSA63J-222X NRSA63J-473X NRSA63J-823X NRSA63J-153X NRSA63J-223X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{cccc} 15 k \Omega & 1/16 W & J \\ 27 k \Omega & 1/16 W & J \\ 2.2 k \Omega & 1/16 W & J \\ 47 k \Omega & 1/16 W & J \\ 82 k \Omega & 1/16 W & J \\ 15 k \Omega & 1/16 W & J \\ 22 k \Omega & 1/16 W & J \\ 47 k \Omega & 1/16 W & J \\ \end{array}$
R0127 R0128-29 R0130-31 R0132 R0133 R0134 R0135 R0136	NRSA63J-273X NRSA63J-823X NRSA63J-391X NRSA63J-222X NRSA63J-333X NRSA63J-222X NRSA63J-333X NRSA63J-103X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{ccccc} 27 k \Omega & 1/16 \text{W} & \text{J} \\ 82 k \Omega & 1/16 \text{W} & \text{J} \\ 390 \Omega & 1/16 \text{W} & \text{J} \\ 2.2 k \Omega & 1/16 \text{W} & \text{J} \\ 33 k \Omega & 1/16 \text{W} & \text{J} \\ 2.2 k \Omega & 1/16 \text{W} & \text{J} \\ 33 k \Omega & 1/16 \text{W} & \text{J} \\ 10 k \Omega & 1/16 \text{W} & \text{J} \end{array}$
R0137 R0138-39 R0140 R0141 R0142 R0143-44 R0145 R0146	NRSA63J-222X NRSA63J-333X NRSA63J-222X NRSA63J-323X NRSA63J-222X NRSA63J-333X NRSA63J-103X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{ccccc} 2.2 k\Omega & 1/16 W & J \\ 33 k\Omega & 1/16 W & J \\ 2.2 k\Omega & 1/16 W & J \\ 33 k\Omega & 1/16 W & J \\ 2.2 k\Omega & 1/16 W & J \\ 33 k\Omega & 1/16 W & J \\ 10 k\Omega & 1/16 W & J \\ 47 k\Omega & 1/16 W & J \\ \end{array}$
R0147 R0148-49 R0150-51 R0152-67 R0168 R0169 R0170 R0171	NRSA63J-223X NRSA63J-391X NRSA63J-104X NRSA63J-101X NRSA63J-750X NRSA63J-222X NRSA63J-333X NRSA63J-750X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{ccccc} 22k\Omega & 1/16W & J \\ 390\Omega & 1/16W & J \\ 100k\Omega & 1/16W & J \\ 100\Omega & 1/16W & J \\ 75\Omega & 1/16W & J \\ 2.2k\Omega & 1/16W & J \\ 33k\Omega & 1/16W & J \\ 75\Omega & 1/16W & J \\ \end{array}$
R0172 R0173 R0174 R0175 R0176 R0177 R0178 R0179	NRSA63J-222X NRSA63J-333X NRSA63J-750X NRSA63J-333X NRSA63J-103X NRSA63J-823X NRSA63J-153X NRSA63J-473X	MG R MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{ccccc} 2.2 k\Omega & 1/16 W & J \\ 33 k\Omega & 1/16 W & J \\ 75 \Omega & 1/16 W & J \\ 33 k\Omega & 1/16 W & J \\ 10 k\Omega & 1/16 W & J \\ 82 k\Omega & 1/16 W & J \\ 15 k\Omega & 1/16 W & J \\ 47 k\Omega & 1/16 W & J \\ \end{array}$
R0180 R0181-82 R0183-84 R0185-90 R0191 R0192 R0194-95 R0196	NRSA63J-273X NRSA63J-562X NRSA63J-102X NRSA63J-101X NRSA63J-222X NRSA63J-101X NRSA63J-221X QRG01GJ-101	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
R0197 R0198 R0199 R0200 R0201 R0203-05	QRK126J-181X NRSA63J-750X NRSA63J-101X NRSA63J-750X QRK126J-151X NRSA63J-750X	C R MG R MG R MG R C R MG R	180Ω 1/2W J 75Ω 1/16W J 100Ω 1/16W J 75Ω 1/16W J 150Ω 1/2W J 75Ω 1/16W J
CAP	ACITOR		
C0101-10 C0111-12 C0113-14 C0115-17 C0118-19 C0120 C0121 C0122	NCB31HK-472X QETN1CM-477Z NCB31HK-102X QETN1HM-106Z QETN1HM-105Z NCB31HK-103X QETN1HM-105Z QETN1HM-106Z	C CAP. E CAP. C CAP. E CAP. C CAP. E CAP. C CAP. C CAP. E CAP.	4700pF 50V K 470μF 16V M 1000pF 50V K 10μF 50V M 1μF 50V M 0.01μF 50V K 1μF 50V M 10μF 50V M

Δ	Symbol No.	Part No.	Part Name	Des	cription
	CAPA	CITOR			
	C0123 C0124 C0125 C0126-28 C0129 C0130 C0131 C0132	QETN1HM-105Z NCB31HK-103X NCB31HK-102X QETN1HM-106Z QETN1HM-105Z NCB31HK-103X QETN1HM-105Z NCB31HK-103X	E CAP. C CAP. C CAP. E CAP. E CAP. C CAP. C CAP. C CAP.	1μF 0.01μF 1000pF 10μF 1μF 0.01μF 1μF 0.01μF	50V M 50V K 50V K 50V M 50V M 50V K 50V M 50V K
	C0133 C0134 C0135 C0136 C0137 C0138-39 C0140 C0141-47	QETN1HM-106Z QETN1HM-105Z QETN1HM-106Z QETN1HM-105Z NCB31HK-103X QENC1HM-105Z QENC1EM-106Z NCB31HK-103X	E CAP. E CAP. E CAP. E CAP. C CAP. BP E CAP. BP E CAP. C CAP.	10µF 1µF 10µF 1µF 0.01µF 1µF 10µF	50V M 50V M 50V M 50V M 50V K 50V M 25V M 50V K
	C0148 C0149 C0150-51 C0152 C0153 C0154 C0155	QETN1HM-106Z QENC1EM-106Z QETN1CM-107Z QETN1CM-477Z NCB31HK-103X QETN1CM-107Z NDC31HJ-150X	E CAP. BP E CAP. E CAP. E CAP. C CAP. C CAP. C CAP.	10µF 10µF 100µF 470µF 0.01µF 100µF 15pF	50V M 25V M 16V M 16V M 50V K 16V M 50V J
_	COIL				
	L0101	QQR0716-001Z	LEAD CORE		
	DIOD	E			
	D0101-04 D0109-13 D0114 D0115-17	MA3056/M/-X MA3120/M/-X MA3039/H/-X MA3056/M/-X	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
	TRAN	SISTOF	₹		
	00101-02 00103-05 00106-09 00110 00111 00112 00113-15 00116	25C2412K/QR/-X DTG323TK-X 25C2412K/QR/-X 25A1037AK/QR/-X DTG323TK-X 25A1037AK/QR/-X 25C2412K/QR/-X 25A933AS/QR/-T	SI.TRANSISTOR DIGI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR		
_	QUIII	230174037 (107)	31. HVIII31310K		
	IC				
	IC0101	CXA2069Q	I C		
	ОТНЕ	RS			
_	CN0001 J0001 J0002 K0101-04	QGB1505K1-50 QNZ0465-001 QNZ0463-001 CE42681-001Y	CONNECTOR PIN CONNECTOR PIN CONNECTOR BEADS CORE		

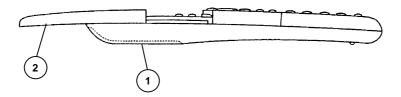
#### ■100Hz P.W. BOARD ASS'Y (SMF0Z004A-U2)

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⚠ Symbol No.	Part No.	Part Name	Description
RO001-06 R0008-09 R0010-12 R0101 R0102-03 R0104 R0105-06 R0107-13	NRSA63J-0ROX NRSA63J-0ROX NRSA63J-101X NRSA63J-332X NRSA63J-222X NRSA63J-222X NRSA63J-222X NRSA63J-750X	MG R MG R MG R MG R MG R MG R MG R	0.0Ω 1/16W J 0.0Ω 1/16W J 100Ω 1/16W J 3.3kΩ 1/16W J 2.2kΩ 1/16W J 3.3kΩ 1/16W J 2.2kΩ 1/16W J 75Ω 1/16W J
R0122-23 R0124-25 R0132-39 R0141 R0201 R0202-03 R0204-05 R0214	NRSA63J-0ROX NRSA63J-101X NRSA63J-100X NRSA63J-100X NRSA63J-121X NRSA63J-0ROX NRSA63J-0ROX	MG R MG R MG R MG R MG R MG R MG R	0.0Ω 1/16W J 100Ω 1/16W J 10Ω 1/16W J 10Ω 1/16W J 12ΩΩ 1/16W J 120Ω 1/16W J 0.0Ω 1/16W J 0.0Ω 1/16W J
R0217 R0218 R0219 R0220 R0223 R0225 R0251 R0252	NRSA63J-103X NRSA63J-333X NRSA63J-103X NRSA63J-822X NRSA63J-473X NRSA63J-0R0X NRSA63J-222X NRSA63J-750X	MG R MG R MG R MG R MG R MG R MG R	10kΩ 1/16W J 33kΩ 1/16W J 10kΩ 1/16W J 8.2kΩ 1/16W J 47kΩ 1/16W J 0.0Ω 1/16W J 2.2kΩ 1/16W J 75Ω 1/16W J
R0254 R0255-56 R0257 R0258 R0259 R0261 R0264 R0271	NRSA63J-391X NRSA63J-221X NRSA63J-271X NRSA63J-272X NRSA63J-472X NRSA63J-222X NRSA63J-391X NRSA63J-222X	MG R MG R MG R MG R MG R MG R MG R	390Ω 1/16W J 220Ω 1/16W J 270Ω 1/16W J 2.7kΩ 1/16W J 4.7kΩ 1/16W J 2.2kΩ 1/16W J 390Ω 1/16W J 2.2kΩ 1/16W J
R0274 R0301-03 R0304-05 R0306-08 R0401 R0402 R0404 R0407	NRSA63J-391X NRSA63J-104X NRSA63J-101X NRSA63J-152X NRSA63J-473X NRSA63J-472X NRSA63J-0R0X NRSA63J-0R0X	MG R MG R MG R MG R MG R MG R MG R	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
R0409	NRSA63J-OROX	MG R	0.0Ω 1/16W J
CAPA	CITOR		
C0001 C0002 C0003 C0004 C0005 C0006 C0007-09 C0101	NCB31CK-104X NEH71CM-476X NCB31CK-104X NEH71CM-476X NCB31CK-104X NEH71CM-476X NDC31HJ-4R0X NEH71CM-106X	CHIP CAP. E CAP. CHIP CAP. E CAP. CHIP CAP. E CAP. C CAP. C CAP.	0.1µF 16V K 47µF 16V M 0.1µF 16V K 47µF 16V M 0.1µF 16V M 47µF 16V M 4.0pF 50V J 10µF 16V M
C0102 C0103 C0104 C0105 C0106 C0107 C0108 C0109	NCB31EK-473X NEH71CM-476X NCB31HK-152X NDC31HJ-102X NCB31CK-104X NCF31CZ-224X NCB31HK-152X NDC31HJ-391X	CHIP CAP. E CAP. CHIP CAP. C CAP. CHIP CAP. C CAP. C CAP. C CAP. CHIP CAP. C CAP.	0.047µF 25V K 47µF 16V M 1500pF 50V K 1000pF 50V J 0.1µF 16V K 0.22µF 16V Z 1500pF 50V J
C0110 C0111 C0112 C0113-18 C0119-24 C0125-26 C0128 C0129	NEH71CM-106X NCB31EK-473X NDC31HJ-331X NCF31CZ-224X NDC31HJ-331X NDC31HJ-3ROX NCB31CK-104X NCF31CZ-224X	E CAP. CHIP CAP. C CAP.	10µF 16V M 0.047µF 25V K 330pF 50V J 0.22µF 16V Z 330pF 50V J 3.0pF 50V J 0.1µF 16V K 0.22µF 16V Z
C0130 C0131 C0132 C0133 C0134 C0136-37	NDC31HJ-391X NCB31HK-152X NCB31EK-473X NCB31HK-152X NCB31CK-683X NCB31CK-683X	C CAP. CHIP CAP. CHIP CAP. CHIP CAP. CHIP CAP. CHIP CAP. CHIP CAP.	390pF 50V J 1500pF 50V K 0.047μF 25V K 1500pF 50V K 0.068μF 16V K 0.068μF 16V K

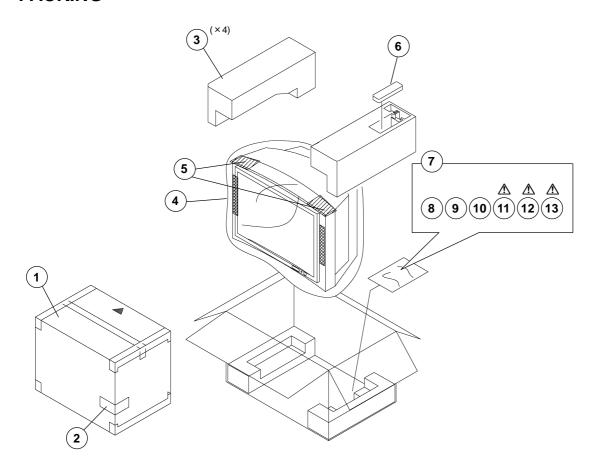
⚠	Symbol No.	Part No.	Part Name	Description		
	CAPACITOR					
	C0138 C0139 C0140 C0185-86 C0201 C0202-05 C0206 C0207-11	NCB31HK-152X NCB31EK-473X NEH71CM-476X NCB31CK-104X NEH71CM-476X NCB31CK-104X NEH71CM-476X NCB31CK-104X	CHIP CAP. CHIP CAP. E CAP. CHIP CAP. E CAP. CHIP CAP. E CAP. CHIP CAP. CHIP CAP.	1500pF 50V K 0.047µF 25V K 47µF 16V M 0.1µF 16V K 47µF 16V M 0.1µF 16V K 47µF 16V M 0.1µF 16V K		
	C0212-13 C0214-17 C0218 C0219 C0220-35 C0237-38 C0239-42 C0251	NDC31HJ-180X NCB31CK-104X NDC31HJ-561X NEH71CM-476X NCB31CK-104X NEH71CM-106X NCB31CK-104X NDC31HJ-4R0X	C CAP. CHIP CAP. C CAP. E CAP. CHIP CAP. E CAP. CHIP CAP. C CAP. C CAP.	18pF 50V J 0.1µF 16V K 560pF 50V J 47µF 16V M 0.1µF 16V K 10µF 16V M 0.1µF 16V K 4.0pF 50V J		
	C0252-53 C0254 C0255 C0256 C0261 C0262-63 C0264 C0265	NCB31CK-104X NDC31HJ-120X NDC31HJ-270X NEH71CM-106X NDC31HJ-4R0X NCB31CK-104X NDC31HJ-120X NDC31HJ-270X	CHIP CAP. C CAP. C CAP. E CAP. C CAP. C CAP. CHIP CAP. C CAP. C CAP.	0.1µF 16V K 12pF 50V J 27pF 50V J 10µF 16V M 4.0pF 50V J 0.1µF 16V K 12pF 50V J 27pF 50V J		
	C0271 C0272-73 C0274 C0275 C0301 C0302-03 C0402-03	NDC31HJ-4R0X NCB31CK-104X NDC31HJ-120X NDC31HJ-270X NEH71CM-476X NCB31CK-104X NCB31CK-104X NDC31HJ-330X	C CAP. CHIP CAP. C CAP. C CAP. E CAP. CHIP CAP. CHIP CAP. C CAP.	4.0pF 50V J 0.1µF 16V K 12pF 50V J 27pF 50V J 47µF 16V M 0.1µF 16V K 0.1µF 16V K 33pF 50V J		
_	COIL					
	L0001-03 L0101 L0102-08 L0109 L0201-03 L0204 L0205-08 L0209-10	NQL092K-1R5X NQL034K-150X NQL092K-3R3X NQL034K-6R8X NQL034K-100X QQL244K-4R7Z NQL034K-100X NQL092K-1R5X	CHIP INDUCTOR CHIP INDUCTOR CHIP INDUCTOR CHIP INDUCTOR CHIP INDUCTOR COIL CHIP INDUCTOR CHIP INDUCTOR CHIP INDUCTOR	4.7µН К		
	L0251 L0261 L0271	NQLO92K-5R6X NQLO92K-5R6X NQLO92K-5R6X	CHIP INDUCTOR CHIP INDUCTOR CHIP INDUCTOR			
	DIOD	E				
	D0401	MA111-X	SI.DIODE			
	TRAN	SISTOR	₹			
	Q0101-02 Q0201 Q0251-52 Q0253 Q0261 Q0271 Q0301-03	2SA1037AK/QR/-X 2SA1037AK/QR/-X 2SA1037AK/QR/-X 2SC2412K/QR/-X 2SA1037AK/QR/-X 2SA1037AK/QR/-X 2SC2412K/QR/-X	SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR SI.TRANSISTOR			
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	IC0101 IC0201 IC0202 IC0203 IC0301 IC0401 IC0402	VPC3230D-QA-B3 SAA4979H/V1 0M4994H SAA4955HL/V1 TDA9178T/N1-X S-80828ANNP-W TC7WH34FU-X	I C I C I C I C			
	OTHE	RS		_		
	CN0003 LC0010-12 LC0013 LC0014-15 X0101 X0201	QGB1505K1-50 NQR0313-009X NQR0313-004X NQR0313-007X QAX0655-001Z QAX0273-001Z	CONNECTOR EMI FILTER EMI FILTER EMI FILTER EMI FILTER XTAL CRYSTAL			

## **REMOTE CONTROL UNIT PARTS LIST (RM-C54-1C)**

⚠ Ref.No.	Part No.	Part Name	Description
1 2	2AA030733 2AA030732	BATTERY COVER SLIDE COVER	



#### **PACKING**



#### **PACKING PARTS LIST**

$\triangle$	Ref.No.	Part No.	Part Name	Description
-	AV28L2EU	GR / AV28L2EUBL	. / AV28L2EUGY	
	1 2 2 2 3 4 5 6	AEM1002-074-E <b>AEM1052-017-E</b> <b>AEM1052-014-E</b> <b>AEM1052-071-E</b> LC11012-002A-U AEM1047-002-E LC31379-001A RM-C54-1C	PACKING CASE EURO LABEL EURO LABEL EURO LABEL CUSHION ASSY POLY BAG SHEET REMOCON UNIT	[AV28L2EUGR] [AV28L2EUBL] [AV28L2EUGY] 4pcs in 1set 2pcs in 1set
<u>^</u> <u>^</u> <u>^</u>	7 8 9 10 11 12	AEM3021-002-E AEM1057-001A-E BT-54013-1E 2832L2X10-HSAEI LCT0887-001A-U LCT0888-001A-U LCT08889-001A-U	POLY BAG X-RAY CARD WARRANTY CARD S.DIAGRAM INST BOOK INST BOOK INST BOOK	(SERVICE)